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ABSTRACT

This three-year study of early learning programs in Washington (District of Columbia) public schools found that the extension of formal educational experiences to preschool and kindergarten classrooms does little to promote academic preparation and can actually hinder future academic achievement and overall child development. The Vineland Adaptive Behavior Scales were used to measure the progress of three cohorts of children from enrollment in prekindergarten or Head Start through grade 1. Preschool students were exposed to the following educational models: (1) Model M, combining child-initiated and academic, teacher-directed approaches; (2) Model AD, an academic, teacher-directed approach; and (3) Model CI, a child-initiated approach. Kindergarten students were exposed to ModAcK/SE, emphasizing socioemotional goals, and ModAcK, emphasizing academic preparation. The following summary conclusions are presented: (1) Model M is ineffective and should be eliminated; (2) Model CI fosters a higher level of social development and basic skills than the other two models; (3) Model AD places children at a disadvantage for later social development; and (4) ModAcK/SE programs in kindergarten emphasizing socioemotional goals are more effective than ModAck programs emphasizing academics in kindergarten. Statistical data are presented in 38 tables and six graphs. The survey questionnaire and one table of statistical data are appended. (FMW)

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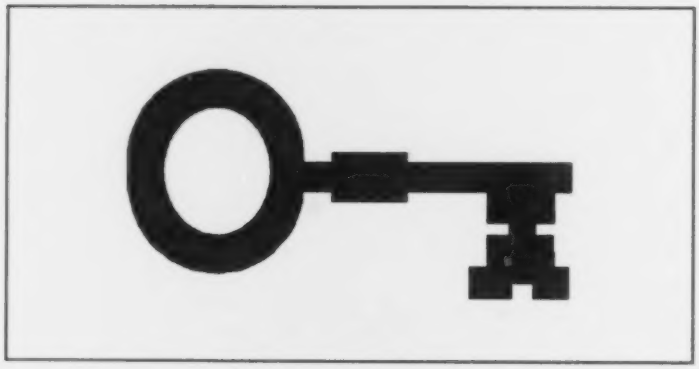
District of Columbia Public Schools

EARLY LEARNING AND EARLY IDENTIFICATION: FINAL REPORT OF THE THREE YEAR LONGITUDINAL STUDY



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Chief State School Officer

December 1990

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District of Columbia Public Schools

EARLY LEARNING AND EARLY IDENTIFICATION: FINAL REPORT OF THE THREE YEAR LONGITUDINAL STUDY

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EXECUTIVE SUMMARY

An unacceptably high first grade retention rate in the District of Columbia Public Schools prompted the Research and Evaluation Branch, Office of Educational Accountability and Planning to initiate an in-depth study of District early learning programs in order to understand the impact of such programs on children's long-term school success. This three-year evaluation study sought to identify types of programs that best prepare children for formal learning experiences and to help educators better understand reasons for learning deficits in the primary grades. The current report details the final year of the evaluation and summarizes conclusions which can be drawn from a comprehensive look at early childhood education in the District of Columbia Public Schools. It is hoped that findings from this in-depth evaluation will provide the Board of Education, administration, and educators with information needed to foster programs that can best meet the needs of young children and their families in Washington, D.C.

After three years of studying early learning programs in the District of Columbia, a clear and consistent theme emerges. The extension of formal educational experiences downward into the pre-primary years does little to promote academic preparation in our children and can actually hinder children's later school achievement and overall development. While it was once believed that any high quality pre-primary program, regardless of its curriculum or instructional focus, would benefit economically

disadvantaged children, our study now indicates otherwise. Results from all three years of this evaluation **clearly support implementation of more active, child-initiated learning experiences at both the pre-primary and primary level.** Furthermore, efforts to compromise between a child-initiated approach and an academically, teacher-directed approach do not work. In order to reap the returns expected from investing in early childhood education, we must assure that what takes place in these early learning programs is the best possible preparation for our children. To do otherwise virtually guarantees continuation of high first grade retention rates and further impairment of our children's social development. This three year study provides a clear direction for early childhood education in the District of Columbia Public Schools.

Social Development

Before presenting the specific impact of different educational approaches upon children's pre-kindergarten, kindergarten and first grade performance, it is important to examine an area of serious concern identified by this study. Our children's level of social development is significantly lower than other areas of their development. This finding is noteworthy because social development has an important affect on later school performance. Some children in the study actually declined in social development as they progressed through the school system, and these decreases were clearly associated with participation in programs that emphasized academic preparation at the expense of socio-emotional development. Fortunately, this decline was not found in children who

participated in the more active, child-initiated early learning programs. Such programs reflected an understanding that young children's development occurs as a whole. Choosing to foster cognitive development over social, affective, and motor development can only lead to later difficulties. However, cognitive advances will follow when adults first acknowledge the important role of social development in early learning experiences.

Educational Approaches

Pre-Kindergarten/Head Start

First, and foremost, are the pre-kindergarten and Head Start programs. Efforts to compromise between a more child-initiated and a more academically, teacher-directed approach do not work for children in this school system. The resulting "middle-of-the-road" (Model M) compromise is ineffective and needs to be systematically eliminated from current classroom practices. Unfortunately, this goal is easier to state than to execute because many teachers currently using the Model M approach do so as a compromise between what they know to be more appropriate practices and the less appropriate requests of their supervising principals. Continued education for administrators in what constitutes appropriate educational practices for young children is critical. It is also possible that some Model M teachers do not fully understand the concept of "developmental appropriateness" or do not know how to effectively implement such practices in their classrooms. All possible reasons for continued use of this ineffective approach need to be explored, confronted, and

dispensed. The "middle-of-the-road" approach to Pre-K/Head Start does not work.

Of the remaining two approaches, there are several factors that suggest the value of a more child-initiated (Model CI) approach with this population of young children. First, the social development of children participating in Model CI programs was consistently higher than that of peers in other programs. In fact, participation in academically, teacher-directed (Model AD) programs places the child at a disadvantage for later social development. By the end of both kindergarten and first grade, children from Model AD pre-kindergartens are noticeably lower in social development than peers, including, in some instances, children who did not even attend pre-kindergarten. Furthermore, for the majority of children in the three year study, Model CI has been superior to other approaches in facilitating mastery of basic skills important for early school success. It is also noteworthy that Model AD children do poorer on first grade reading and mathematics objectives than children from other preschool models. Pushing academics too soon, especially if it occurs at the expense of other important areas of development, does not result in better academic performance.

Finally, long-term results need to be considered when choosing to implement either Model CI or Model AD programs for four-year-old children in the District. This study's academically directed model closely resembles the didactic models that Miller and Bizzell (1984) and Schweinhart, Weikart, and Larner (1986) found to have long-term negative effects on adolescent social behavior and school

achievement. These longitudinal studies suggest a need to re-examine the appropriateness of preschool curricula that place young learners in a respondent, rather than initiator role. In the long-term, a more active, child-initiated approach (Model CI) appears to be the better choice for children attending pre-kindergarten or Head Start in the District of Columbia Public Schools.

Kindergarten

A clear choice of kindergarten programs emerges in this three year study, at least for children who have attended pre-kindergarten or Head Start prior to enrolling in kindergarten. Programs that emphasize the socio-emotional goals of kindergarten (ModAcK/SE) produce results which are superior to ModAcK programs that believe academic preparation is a more important goal of the kindergarten experience. These results are evident, not only in the short-term, but also in the first year of the primary school experience. The development of children from ModAcK/SE kindergartens continues to advance in first grade, whereas children from ModAcK kindergartens actually loose ground developmentally in first grade. Ironically, kindergarten programs that believe academic preparation is more important produce fewer increases in skills at the kindergarten level and yield poorer performance on first grade reading and mathematics objectives.

There is no advantage in making the pre-kindergarten experience more like the current kindergarten experience. Nor does there appear to be any advantage in making the kindergarten experience more like the first grade experience by keeping it a 'junior' version of first grade. There is, however, reason to

expect some real benefits from returning the kindergarten experience to the preparatory role it once held.

In the process of "letting kindergarten be kindergarten once again" it will be especially critical to plan more effective interventions for children who enter kindergarten with no prior school experiences. Kindergartners and first graders in this study did noticeably better if they had attended pre-kindergarten or Head Start before entering kindergarten. Children who lacked prior school experience did poorer in kindergarten and even the more beneficial Model ModAcK/SE did not help these inexperienced children to 'catch up.' These children's needs deserve special consideration in future planning. At present, the most appropriate model for teaching kindergartners with no prior school experience does not appear to exist within the District of Columbia Public Schools.

First Grade

At the first grade level a provisional endorsement of content-centered curriculum (Model TIC) is possible. However, the true effectiveness of primary grade approaches typified by Model TIC in this study is unknown because it has only been compared with an approach known to be less effective with District children. No programs using strategies like those reflected in Model CI were available for study at the first grade level. Until such a comparison can be made, it is probably best to avoid "middle-of-the-road" compromises and to carefully consider potential long-term difficulties inherent in the Model TIC approach.

What clearly emerges from this three year study is the effect of earlier school experiences on first grade performance. Both the current and pilot data yield two consistencies with respect to preschool influences. First, children from "middle-of-the-road" Model M pre-schools do poorer than peers from other preschool models. Second, in contrast to their peers, first graders from child-initiated Model CI pre-schools continue to make progress in social development. Of equal importance is the higher pass rates on first grade reading and mathematics objectives from children who attended ModAcK/SE kindergartens. Socio-emotional kindergarten experiences may be the best preparation for acquisition of first grade skills, especially if children attended pre-kindergarten or Head Start and are involved in content-centered first grade programs.

Recommendations

1. Systematically eliminate the "middle-of-the-road" (Model M) approach from pre-kindergarten and Head Start classrooms in District schools by:
   a. re-educating teachers and administrators in the benefits of child-initiated learning and reducing penalties currently impeding implementation of more appropriate classroom experiences
   b. providing practical suggestions and incentives for adjusting instructional practices to be more

developmentally appropriate for young children

c. increasing the Early Childhood Education Office's role in recruitment and personnel decisions affecting Pre-K through Grade 3

2. Foster growth of child-initiated (Model CI) early learning programs that enhance later academic achievement and overall development of children by:

   a. encouraging teachers and administrators to re-orient the early childhood educator's role to that of facilitator who provides a stimulating environment and allows children to select from among many possible learning situations

   b. demonstrating for parents what children are learning through play and more active classroom experiences; as well as showing parents ways to continue an active learning process outside the classroom

   c. using an early childhood team approach within schools that enhances communication between Pre-K through Grade 3 teachers and leads to coordinated continuity of curriculum, goals, and methods that work best for young children

3. Re-establish kindergarten as a preparatory learning experience distinctly different from its current function as a 'junior' first grade by:

a. emphasizing the importance of socio-emotional development for later academic success and fostering educational practices that develop the entire child
b. providing adequate funds to equip classrooms with materials and resources needed to stimulate appropriate early learning experiences
c. eliminating beginning-of-kindergarten administration of the Metropolitan Readiness Test because it introduces an illusion of 'junior' first grade status
d. requiring kindergarten teachers to be certified in early childhood education or to have comparable training in child development relevant to the needs of five-year-old children.

4. Provide more effective strategies for introducing children, especially kindergartners with no prior experience, to their new school experience by:
   a. allowing these children to begin the school year earlier as part of an extended orientation program with their actual classroom teacher under a reduced class size situation that would allow more individual attention during the crucial transitional period
   b. closely monitoring the adjustment of inexperienced children and assigning a team of elementary

counselors to deal specifically with this early childhood population on a District-wide basis

5. Establish a demonstration early childhood program for Pre-K through Grade 3 that will serve as an integrative staff training facility and innovative, experimental arena for new developments in the field (i.e., ungraded primary education as a way to reduce the stigma of early failure for minority children).

6. Re-evaluate the progress of children in this study as they move through the school system so that long-term effectiveness of different models can be determined. Evaluations at three- to five-year intervals and/or at critical transitional periods (i.e., upper elementary, junior high, senior high) would be helpful for identifying early childhood objectives that contribute to children's overall school competence.

EARLY LEARNING AND EARLY IDENTIFICATION STUDY
1988-89

The District of Columbia Public Schools has conducted a three year, in-depth study of its early learning programs in order to understand the impact of such programs on children's long-term school success. The high first grade retention rate in this school system prompted this study because children in this city are offered two years of early educational experiences before first grade entry. This study sought to identify types of programs that best prepare children for formal learning experiences. This study was also designed to help educators better understand reasons for learning deficits in the primary grades so that preventative measures could be developed. Findings from this in-depth evaluation of early learning programs provide the Board of Education, Administration and educators with information needed to build programs that can best meet the needs of children and their families in Washington, D.C.

Evaluation Design

The 1988-89 Early Learning and Early Identification Study provides a third year of data for an extensive evaluation of early educational efforts in the District of Columbia Public Schools. In the study's third year, the original group of pre-kindergarten and Head Start children (Class of 2000) were followed into first grade, along with their matched group of classmates who had not attended pre-kindergarten or Head Start. The second group of pre-kindergarten and Head Start children (Class of 2001) were followed into kindergarten where they were matched with classmates who had no prior school experience. Finally, a third group of pre-kindergarten and Head Start four-year-olds (Class of 2002) were added to the study in order to verify the generalizability of findings from the previous two years of the study.

Evaluation Questions

Year Three of this extensive evaluation followed up on specific concerns addressed in the 1986-87 and 1987-88 report on Early Learning and Early Identification. These concerns focused on the impact of pre-kindergarten and kindergarten experiences on children and on schools housing such programs. An advisory group consisting of early childhood directors, educators, and parents identified areas where the Board of Education, the Superintendent, early childhood supervisors, curriculum specialists, principals, counselors and facilities planners would need more information.

Of special concern were the following areas:

- Effects of **DIFFERENT PROGRAM MODELS** and philosophies of early childhood education on children's performance and development
  - What approaches have the most positive impact on children's development and progress toward mastery of basic skills?
  - Are the same approaches effective for children in pre-kindergarten, kindergarten, and first grade?
  - Is continuity of program model from pre-kindergarten to kindergarten to first grade desirable?

- Effects of early educational experience on **SCHOOL PERFORMANCE** in the **PRIMARY GRADES**
  - How do children with no prior school experience do in kindergarten?
  - What does the pre-kindergarten experience contribute to kindergarten performance and readiness for first grade?

- **CONFLICTING PHILOSOPHIES** of early childhood education and lack of agreement about program function and teacher role
  - Is there a continuum of kindergarten and first grade programs in the District of Columbia Public Schools that reflects the various philosophies of early childhood education?
  - Is the difference between pre-kindergarten or Head Start and kindergarten and first grade appropriate for the development and learning style of young children?

PROGRAM EFFECTS: PRE-KINDERGARTEN

A sample of 202 District of Columbia Public School (DCPS) children enrolled in pre-kindergarten or Head Start programs during the 1988-89 school year was studied in order to determine what initial impact early learning experiences had on children's development and progress toward mastery of basic skills needed for early school success. This group of children represented a third cohort of preschoolers (Class of 2002) that could be compared with two previously studied preschool cohorts (Class of 2000 and Class of 2001) in the District of Columbia Public Schools.

The programs in which the 'Class of 2002' participated represented the same three distinct orientations or models of early childhood education in which the 'Class of 2000' and the 'Class of 2001' had participated. The same two measures were again used in Year Three of this study to evaluate both the general effectiveness of early learning programs and the differential effectiveness of the three program models.

The Vineland Adaptive Behavior Scales (1985-86 norms) was selected as a standardized comparison of DCPS preschoolers' development with normative expectations for this age group. This scale yields an overall Adaptive Behavior Composite Score, as well as four domain scores measuring Communication (receptive, expressive, written), Daily Living Skills (personal, domestic, community), Socialization (interpersonal relationships, play and leisure time, coping skills), and Motor Development (gross, fine).

The DCPS Early Childhood Progress Report was used to compare preschoolers' classroom performance with DCPS' expectations of progress towards skills mastery. For research purposes the progress report ratings were converted to a numerical grade point average with four subscores measuring math/science, verbal (reading preparation, listening and speaking, literature), social (work and social habits), and physical skills.

General Effectiveness of Pre-K/Head Start Programs

After completing the school year in a DCPS' Pre-K or Head Start program this third cohort of preschoolers is scoring at or very near the mean on a standardized measure of development (Vineland Adaptive Behavior Scales). As was also true of the previous two cohorts, Language (101.16) and Motor (105.32) development of the 'Class of 2002' are slightly above the mean, while Social development (94.27) is slightly below expectations for this age group and significantly lower ($p < .001$) than any other area measured

by the Vineland. Motor skills are significantly more developed ($p < .001$) than other areas measured.

Findings from this third cohort of preschoolers so closely parallel earlier findings for the 'Classes of 2000 and 2001' that initial concerns about children's social development can be confidently reiterated. Even at age four, social development is a relative weakness that needs to be closely monitored because early social development has an important affect on later school performance. Ways to enhance socioemotional development are needed along with removal of any obstacles in the school environment that may impede healthy socioemotional growth. It is now a well documented fact that these youngest children in the school system often lack the coping and interpersonal skills needed to deal effectively with their environment. Programs that focus exclusively on cognitive development and academics will not facilitate young children's social development. A plan for developing the entire child is needed, beginning in pre-kindergarten and continuing throughout a child's school career.

As measured by Progress Report data, children are, on the average, performing within DCPS' expectations upon leaving a DCPS Pre-K or Head Start program. As a group they are progressing towards mastery of the basic skills needed to succeed in first grade. Because the same Progress Report is used for both kindergarten and pre-kindergarten students, it would not be expected that children had mastered all the skills by the end of Pre-K or Head Start. Findings from this third cohort of preschoolers parallel earlier findings that, on the average, DCPS preschoolers are making greater progress in Verbal skills (2.71 on a 3-point scale) than in the area of Math/Science (2.54 on a 3-point scale).

Differential Program Effectiveness: Sample Selection

In order to identify different program orientations Pre-K and Head Start teachers with similar beliefs about early childhood education (see Figure 1) and similar classroom practices (see Figure 2) were grouped using a cluster analysis procedure (see Appendix A for the survey used to cluster teachers). Teachers who were new to DCPS or who had not previously responded were surveyed and their responses were added to the clustering procedure. The same three preschool models previously identified through cluster analysis were used in the 1988-89 study.

Figure 1

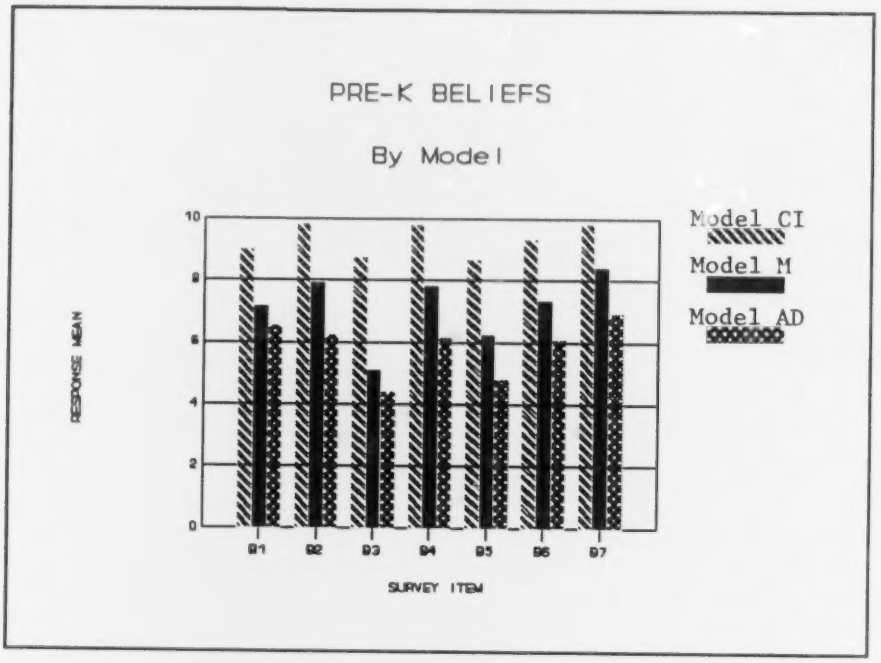
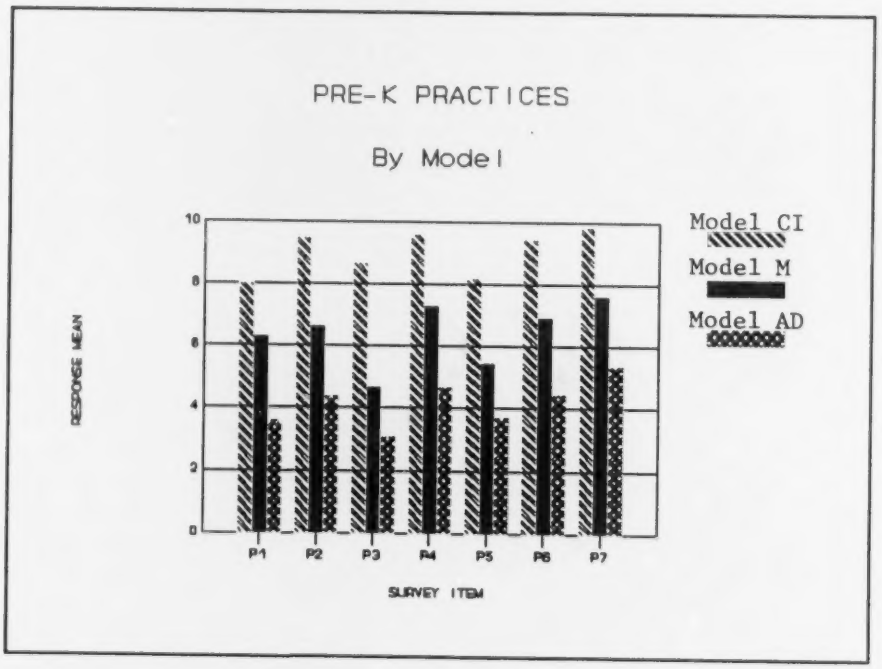


Figure 2



Model CI represented child-initiated classrooms where teachers were child development-oriented and sought to facilitate learning by allowing children to direct the focus of their learning. Model AD represented more academically-directed classrooms where teachers preferred more direct instruction and teacher-directed learning experiences for preschoolers. Model M represented middle-of-the-road classrooms with teachers whose beliefs and practices fell in-between the other two opposing models.

The sample of classrooms used in the 1988-89 study was smaller than the original 'Class of 2000' sampling of 43 classrooms, but similar to the 21 classroom response obtained from the 'Class of 2001'. Children were randomly sampled from each of the three preschool models according to regional proportions of the total Pre-K and Head Start enrollment during the 1988-89 school year. Where too few classrooms in a particular region were available for study, additional children from other regions within the same model were selected at random. Had all teachers completed the requested information for all selected children, the 1988-89 sample would have included 286 children. However, as shown in Table 1 and Table 2, a total of 202 children's Vineland forms (71%) and 180 Progress Reports (63%) were returned by teachers during Year Three of this study. This small sample of the 'Class of 2002' is acceptable for a replication study, although the reduced sample size makes replication of earlier findings more difficult. Demographics of the preschool sample for all three cohorts are reported in Appendix B. Although similar to previous samples of four-year-olds, the current cohort ('Class of 2002') sample had a higher percentage of males and was ethnically less diverse.

Table 1

Pre-Kindergarten Sample (Cohort 3)
Vineland Data

Region	# of Children	# of Schools	# of Classes	# of Classes in Model CI	M	AD
A	65	9	10	8	1	1
B	23	1	2	2	-	-
C	56	8	8	4	3	1
D	58	5	5	1	3	1
Total	202	23	25	15	7	3

Table 2

Pre-Kindergarten Sample (Cohort 3)
Progress Report Data

Region	# of Children	# of Schools	# of Classes	# of CI	Classes M	in Model AD
A	57	8	9	7	1	1
B	23	1	2	2	-	-
C	51	7	7	3	3	1
D	49	4	4	1	2	1
Total	180	20	22	13	6	3

Due to possible economic differences among children in this random sample, all analyses of children's data statistically controlled such differences by using information on eligibility for subsidized lunch as a covariate.

Differential Program Effectiveness: Children's Development

As reported in Table 3, Vineland scores of Model M (middle-of-the-road) children were consistently lower than scores of Model CI (child-initiated) and Model AD (academically-directed) children in all areas except Daily Living Skills. These differences were statistically significant for the Composite Score ($p < .05$), Communication ($p < .01$), and Motor development ($p < .001$). Further analysis of the data showed Model CI children scored significantly higher than Model M children in Adaptive Behavior ($p < .05$) and Motor development ($p < .01$). Children in Model AD programs also scored significantly higher than Model M children in Adaptive Behavior ($p < .05$), as well as Communication ($p < .05$) and Motor development ($p < .01$).

No significant developmental differences were found between Model CI and Model AD children. However, there was a trend ($p = .10$) for Model CI children to demonstrate greater development of Daily Living Skills than peers enrolled in Model AD programs. Analysis of subdomain scores also indicated that Model CI children had developed superior skills in receptive language ($p < .001$) while Model AD children excelled in written language skills ($p < .01$). Model CI children also had more highly developed personal ($p < .001$) and interpersonal skills ($p < .01$) at the end of preschool than did peers who had participated in Model M or Model AD programs.

Table 3

Vineland Scores by Preschool Model (Cohort 3)
Means (M) and Standard Deviations (SD)

		Model CI	Model M	Model AD
Composite Score				
Adaptive	M	100.62	95.89	101.89
Behavior	SD	(12.37)	(12.95)	(12.29)
Domain Scores				
Communication	M	101.67	96.67	106.93
	SD	(17.18)	(16.90)	(16.30)
Daily Living	M	101.45	98.49	96.98
	SD	(11.46)	(13.00)	(13.08)
Social	M	94.57	92.78	95.79
	SD	(10.03)	(11.26)	(12.46)
Motor	M	107.90	99.83	108.21
	SD	(14.62)	14.03)	(13.67)

Note. A standard composite or domain score of 100 represents the median score, with 50% of the children at a specified age scoring above 100 and 50% of the children scoring below 100. The Vineland's standard deviation of 15 points predicts that 68% of the children will earn scores between 85 and 115, placing them within the adequate range of development for their age.

These findings for the 'Class of 2002' (Cohort 3) parallel earlier findings of lower Vineland scores for Model M preschoolers in both the 'Class of 2001' (Cohort 2) and the 'Class of 2000' (Cohort 1). Furthermore, results from this current group of preschoolers (Cohort 3) most resemble the development of the original group of children studied (Cohort 1) in that few differences were found between Model CI and Model AD children at the end of pre-kindergarten.

Three years of data from three different cohorts of children have consistently indicated that the Model M preschool approach is the least effective strategy for facilitating development among four-year-olds in the District of Columbia. Communication skills develop more effectively with either the Model AD or Model CI approach. However, for at least one of the cohorts studied ('Class of 2001) Model CI was superior to Model AD for language development. The same is true of Daily Living Skills and Social development among the three groups of Pre-K/Head Start children studied. Motor development of children completing a year of Model CI or Model AD preschool is comparable and superior to motor development of peers from Model M programs. Based upon these outcome data it would be fair to conclude that Model CI is somewhat more effective than other approaches and Model M should be systematically eliminated from the District of Columbia Public Schools.

Differential Program Effectiveness: Progress Towards Skills Mastery

Although children in Model M programs earned lower grades in every area reported in Table 4 except physical skills, these differences were not statistically significant. In fact, children in the 'Class of 2002' were making similar progress towards mastery of basic skills regardless of the preschool program in which they participated. A few interesting differences were found, however, for Model AD and CI children. While Model AD children scored significantly lower ($p < .01$) in Science skills (mean = 2.39) compared to Model CI (mean = 2.66) and Model M (mean = 2.51) children, their mean Reading Preparation score (2.88) was significantly higher ($p < .05$) than the mean earned by both Model CI and Model M children (2.74). Model CI children were significantly ($p < .05$) stronger in Literature skills.

These findings for the 'Class of 2002' (Cohort 3) are notably different from previous results obtained when the 'Class of 2001' and the 'Class of 2000' were enrolled in pre-kindergarten or Head Start. For the previous groups, children in Model CI programs demonstrated greater progress towards skills mastery in all areas than did children in

either Model M or Model AD. The lack of such differences in the current group of preschoolers may be a result of sampling differences. Due to reduced teacher cooperation, the current sample was smaller than in previous years of this study. In particular, Model AD programs were under-represented and the lower standard deviations reported for this group in Table 4 suggest a less diversified group of children than had previously been studied. The overall sample of Cohort 3 also included a higher percentage of males and was ethnically less diverse than in previous years (see Appendix B).

Table 4

Progress Report Scores by Preschool Model (Cohort 3)
Means (M) and Standard Deviations (SD)

		Model CI	Model M	Model AD
Overall G.P.A.	M	2.68	2.63	2.68
	SD	(.29)	(.35)	(.20)
Subareas				
Math/Science	M	2.56	2.50	2.57
	SD	(.35)	(.44)	(.26)
Verbal	M	2.71	2.65	2.79
	SD	(.31)	(.38)	(.19)
Social	M	2.78	2.72	2.80
	SD	(.28)	(.38)	(.24)
Physical	M	2.70	2.70	2.72
	SD	(.32)	(.42)	(.29)

Note. Overall Grade Point Average (G.P.A.) and subarea scores could range from 1.00 to 3.00, with the higher score indicative of greater skill mastery. A score of 3 was given to skills that had been mastered, a 2 for skills in which the child was progressing towards mastery, and a 1 for skills the child still needed help with. The verbal score was a composite of all language arts experiences (reading preparation, listening and speaking, literature) listed on the Progress Report. The social score included social development and work habits.

Based upon three years of data from three different cohorts, it appears that the Model M preschool approach is the least effective approach for developing skills necessary for early school success. For two of the three cohorts studied, Model CI programs were most successful in helping children master these important early skills. For the third cohort, Model CI and Model AD appeared to be equally helpful in developing early skills.

Conclusions

Although the third cohort of children studied at the preschool level ('Class of 2002') performed somewhat differently from the previously studied cohorts, similarities do exist that imply a clear direction for early childhood education in the District of Columbia Public Schools. The Model M (middle-of-the-road) approach to preschool education does not work for children in this school system. The data are strong enough to recommend systematic elimination of Model M programs. Unfortunately, this goal is easier to state than to execute because many teachers currently using the Model M approach do so as a compromise between what they know to be more appropriate practices and the less appropriate requests of their supervising principals. Continued education for administrators in what constitutes appropriate educational practices for young children is critical. It is also possible that some Model M teachers do not fully understand the concept of developmental appropriateness or do not know how to effectively implement such practices in their classroom. All possible reasons for continued use of this ineffective approach need to be explored, confronted, and dispensed. Model M does not work.

Selecting between Model CI (child-initiated) and Model AD (academically-directed) approaches is a more difficult task because both approaches have demonstrated strengths in the short-term. However, there are several factors that suggest the value of a more child-initiated approach with this population of young children. First, the social development of children participating in Model CI programs was consistently higher than that of peers in other programs. This finding is noteworthy because social development has an important affect on later school performance. Second, for the majority of children studied in the past three years, Model CI has been superior to other approaches in facilitating mastery of basic skills important for early school success. Finally, even when participation in Model AD produces short-term results similar to the Model CI experience (i.e., Cohort 3 grades), long-term results need to be considered. This study's academically-directed preschool model closely resembles the didactic models that Miller and Bizzell (1984) and Schweinhart, Weikart, and Larner (1986) found to have long-term negative effects on

adolescent social behavior and school achievement. Even when short-term differences are insignificant, these longitudinal studies suggest a need to re-examine the appropriateness of preschool curricula that place young learners in a respondent, rather than initiator role. In the long-term, Model CI appears to be the better choice for children attending pre-kindergarten or Head Start in the District of Columbia Public Schools.

PROGRAM EFFECTS: KINDERGARTEN

A sample of 162 DCPS children enrolled in kindergarten during the 1988-89 school year was studied to determine the continuing impact of early learning experiences on children's development and mastery of basic skills. Of these 162 children, 113 had attended a DCPS pre-kindergarten or Head Start program during the 1987-88 school year and were referred to in the previous section of this report as Cohort 2 ('Class of 2001'). The remaining 49 kindergartners had not attended a preschool within or outside the District of Columbia Public Schools. These children were matched by sex, ethnicity (when possible), and kindergarten teacher with Cohort 2 children to determine what effect preschool attendance had on performance in kindergarten. Neither pre-kindergarten or kindergarten attendance were mandatory in the District of Columbia at the time of this study.

The same two measures (Vineland Adaptive Behavior Scales and DCPS Early Childhood Progress Report) previously used to assess progress at the preschool level were used to monitor children's development and mastery of basic skills after a year of kindergarten. For kindergartners a third measure, the Metropolitan Readiness Test (MRT), was used to assess readiness for formal education because District policy stipulates administration of the MRT at the beginning of kindergarten to all children enrolled in D. C. Public Schools. Re-administration of the MRT at the end of kindergarten is optional and consequently this study only analyzes results from the initial MRT administration. The MRT yields an overall composite score (raw score, percentile, stanine) of reading readiness, as well as three domain scores measuring auditory, visual, and language components of reading readiness. No standardized assessment of arithmetic readiness is made.

Impact of Pre-K or Head Start Attendance on Kindergarten Performance

Three aspects of attending either a pre-kindergarten or Head Start program were examined in Year Three of the Early Learning and Early Identification Study. First, the

kindergarten performance of children who had attended a DCPS pre-kindergarten or Head Start program was compared with children who had no previous school experience. Second, performance of children who had attended three different types of preschool programs (Model CI, Model M, Model AD) was compared at the beginning and end of kindergarten. Finally, children's performance in pre-kindergarten and kindergarten was compared to determine what developmental changes had occurred in the 'Class of 2001' (Cohort 2) since this study began.

Pre-K/Head Start versus no Pre-K/Head Start. Vineland data were returned for 49 matched pairs (49 kindergartners with Pre-K/Head Start and 49 kindergartners without Pre-K/Head Start) of children. End-of-year Progress Report data were available for 47 matched pairs. Demographics of the matched sample are reported in Appendix B.

Although comparisons between matched pairs of kindergartners (see Tables 5 and 6) indicated few significant differences in development or skills mastery, children who had attended pre-kindergarten or Head Start generally scored higher than children with no previous school experience. However, the difference was only statistically significant for mastery of Science skills ($p < .05$).

Table 5

Vineland Scores for Children (Cohort 2)
With and Without Pre-K/Head Start Experience

		Attended Pre-K	No Pre-K
Composite Score			
Adaptive	M	90.28	88.61
Behavior	SD	(13.50)	(17.96)
Domain Scores			
Communication	M	91.51	90.71
	SD	(15.62)	(20.32)
Daily Living	M	95.08	91.84
	SD	(13.45)	(18.07)
Social	M	85.82	84.92
	SD	(13.32)	(15.57)

Table 6

Kindergarten Progress Report Scores for Children (Cohort 2) With and Without Pre-K/Head Start Experience

		Attended Pre-K	No Pre-K
Overall G.P.A.	M	2.56	2.48
	SD	(.34)	(.52)
Subareas			
Math	M	2.55	2.40
	SD	(.39)	(.58)
Art/Music	M	2.77	2.72
	SD	(.43)	(.56)
Science	M	2.34	2.14
	SD	(.49)	(.60)
Physical	M	2.68	2.58
	SD	(.39)	(.59)
Social	M	2.60	2.54
	SD	(.36)	(.48)
Reading	M	2.74	2.61
	SD	(.37)	(.60)
Listening	M	2.45	2.33
	SD	(.44)	(.63)
Literature	M	2.46	2.40
	SD	(.48)	(.64)
Work Habits	M	2.42	2.32
	SD	(.47)	(.66)

Note. Overall Grade Point Average (G.P.A.) and subarea scores could range form 1.00 to 3.00, with the higher score indicative of greater skill mastery. A score of 3 was given to skills that had been mastered, a 2 for skills in which the chid was progressing towards mastery, and a 1 for skills the child still needed help with.

Further analysis of the data by type of preschool model attended found social skills of children who had attended Model AD preschools to be significantly lower ($p < .05$) than matched kindergarten peers with no preschool experience. Analysis of skills mastery by type of kindergarten model attended was also performed. For children enrolled in kindergarten programs that valued socioemotional development (Model ModAcK/SE) a trend ($p = .07$) for enhanced Listening skills was found among children with previous DCPS experience compared to matched peers with no previous experience. Among kindergartners in programs that emphasized academic preparation over socioemotional development (Model ModAcK), those with preschool experience demonstrated significantly higher ($p < .05$) mastery of basic Science skills.

The pattern of findings for Cohort 2 children parallels results for Cohort 1 children, although results from that previously studied group of kindergartners were statistically significant due to larger sample size and more representative demographic characteristics. Never-the-less, the pattern of higher achievement among children who had attended pre-kindergarten or Head Start holds.

Interpreting these findings requires an integration of two possible explanations. First, these data confirm the preschool experience as beneficial for preparing children to meet the demands of kindergarten. Kindergarten in the District of Columbia Public Schools is generally a formal-learning experience similar to what children usually encounter for the first time in first grade. Kindergartners with prior school experience are probably making the transition to formal schooling more successfully than peers with no prior experience. The smoother transitional experience allows uninterrupted continuation of learning, while 'newcomers' must spend time just trying to learn school routines and adjust to school demands. That additional adjustment time may have interfered with progress made during the kindergarten year by children with no previous school experience. Further support for this interpretation of the data is found in the reduced developmental scores of experienced children who changed schools from pre-kindergarten to kindergarten. Adjusting to new situations often occurs at the expense of successfully fulfilling other expectations such as the academic performance expected of kindergartners in District schools.

A second interpretation of these data focuses on appropriateness of the kindergarten experience as it currently exists. If kindergartens were fulfilling their goal of preparing children for the formal learning experiences of first grade, children with no prior school experience would leave kindergarten as prepared for first

grade as peers who had attended pre-kindergarten or Head Start. When kindergarten shifts from being a preparation for formal learning to being an actual formal learning experience itself, it benefits only the small portion of five-year-olds who are ready for formal learning. Children should not be penalized for entering school for the first time at age five. If curriculum incorporating appropriate developmental strategies were fully implemented at the preprimary and primary levels, differences between experienced and inexperienced children could be reduced.

Type of Pre-K/Head Start attended. Beginning of kindergarten Metropolitan Readiness Test (MRT) scores were available for 9 children who had previously attended a Model CI (child-initiated) preschool, 41 children who had attended a Model M (middle-of-the-road) preschool and 32 children who had attended a Model AD (academically-directed) preschool. End-of-kindergarten Vineland data were returned for 9 former Model CI children, 48 former Model M children, and 39 former Model AD children. Final kindergarten Progress Report grades were available for 9 former Model CI children, 48 former Model M children, and 41 former Model AD children.

Comparisons between children from these three preschool models indicated Model CI children entered kindergarten with significantly higher ($p < .01$) Visual Reading Readiness skills than peers from other preschool models. While Communication skills were significantly higher ($p < .05$) among kindergartners who had attended Model AD preschools compared to kindergartners from Model M preschools, a trend ($p = .09$) toward lower Social development for Model AD children was also found at the end of kindergarten.

As shown in Table 7, overall grade point average of children from Model M preschools was significantly lower than Model CI ($p < .05$) and Model AD ($p < .01$) children at the end of kindergarten. Model M children scored lower in all subareas of the Progress Report except Science and their grades were significantly lower in Math ($p < .05$), Physical skills ($p = .07$), Social skills ($p < .05$), Listening skills ($p < .01$), Literature skills ($p < .01$), and Work Habits ($p < .05$). While Model CI children earned higher grades than Model AD children in all areas (except reading grades were equal) at the end of kindergarten, these differences were only statistically significant ($p < .05$) for Science skills. The 'hands on' experience that Model CI children received in pre-kindergarten or Head Start probably contributed to a better understanding of science principles and subsequently higher grades in this area.

Table 7

Kindergarten Progress Report Scores by Pre-K Model
Means(M) and Standard Deviations (SD)

		Model CI	Model M	Model AD
Overall G.P.A.	M	2.84	2.48	2.72
	SD	(.19)	(.48)	(.33)
Subareas				
Math	M	2.80	2.43	2.64
	SD	(.16)	(.56)	(.36)
Art/Music	M	2.82	2.66	2.81
	SD	(.31)	(.52)	(.40)
Science	M	2.81	2.38	2.33
	SD	(.35)	(.56)	(.69)
Physical	M	2.93	2.67	2.82
	SD	(.13)	(.45)	(.34)
Social	M	2.87	2.51	2.74
	SD	(.19)	(.46)	(.38)
Reading	M	2.80	2.62	2.80
	SD	(.34)	(.56)	(.37)
Listening	M	2.82	2.37	2.73
	SD	(.33)	(.51)	(.36)
Literature	M	2.78	2.42	2.75
	SD	(.36)	(.53)	(.44)
Work Habits	M	2.80	2.38	2.67
	SD	(.32)	(.58)	(.50)

Note. Overall Grade Point Average (G.P.A.) and subarea scores could range from 1.00 to 3.00, with the higher score indicative of greater skill mastery. A score of 3 was given to skills that had been mastered, a 2 for skills in which the child was progressing towards mastery, and a 1 for skills the child still needed help with.

Findings for this current group of kindergartners (Cohort 2) differ from end-of-kindergarten results for Cohort 1 ('Class of 2000'). Previously, no differences attributable to preschool model were found. However, there is some commonality between findings for these two different cohorts of children. In both cases, academically-directed pre-kindergarten (Model AD) did not better prepare children for the demands of an academically focused kindergarten experience. A downward extension of formal education into the preprimary years does not appear to be the answer for correcting deficits currently found in the primary grades and these current findings suggest continued benefits of a Model CI experience for acquisition of basic skills important to early school success.

Pre-K/Head Start to Kindergarten. Vineland data for 77 children in the 'Class of 2001' (Cohort 2) were available to trace development over time relative to same aged peers in a normative sample. For 74 of these children Progress Report data were also available to trace changes in skills mastery relative to earlier levels of skill attainment.

Comparisons between Vineland scores at the end of pre-kindergarten or Head Start and Vineland scores at the end of kindergarten showed a slight drop in the Composite Adaptive Behavior score (from 98.31 to 96.49). Of special concern was the significant decrease ($p < .05$) in Social development from 94.04 to 88.69. Further analysis of the data attributed this drop in social development to participation in a kindergarten program that believed academic preparation was a more important goal than socioemotional development. Clearly, that type of kindergarten produced lower Social development in children. Whereas social development scores of children in kindergartens that valued socioemotional growth rose from 85.47 to 94.07 ($p = .06$), Social development of children in programs emphasizing academics dropped significantly ($p < .01$) from pre-kindergarten (96.11) to the end of kindergarten (87.39).

Overall there was no significant difference in G.P.A. from the end of pre-kindergarten (2.55) to the end of kindergarten (2.62), although kindergarten grades generally indicated increased mastery of the basic skills necessary for early success in school. In particular, children made significant increases in Math skills (from 2.36 to 2.58, $p < .001$), Science skills (from 2.35 to 2.56), and Physical skills (from 2.59 to 2.72, $p < .05$). Further data analysis compared changes achieved in two different types of kindergarten programs, those moderately academic programs that valued socioemotional development (Model ModAcK/SE) and those that believed academic preparation was more important (Model ModAcK). As shown in Table 8 the differences between these two programs were notable.

Table 8

Pre-K/Head Start versus Kindergarten Progress Report Scores by Kindergarten Model (Cohort 2)

	Mean	ModAcK/SE	ModAcK
Overall G.P.A.	PK	2.34	2.61
	K	2.67	2.59
Subareas			
Math	PK	2.30	2.38
	K	2.57	2.59
Art/Music	PK	2.33	2.67
	K	2.75	2.69
Science	PK	2.21	2.40
	K	2.65	2.52
Physical	PK	2.35	2.66
	K	2.85	2.69
Social	PK	2.24	2.68
	K	2.73	2.59
Reading	PK	2.53	2.69
	K	2.82	2.64
Listening	PK	2.38	2.54
	K	2.57	2.59
Literature	PK	2.30	2.52
	K	2.65	2.56
Work Habits	PK	2.49	2.60
	K	2.59	2.49

For children enrolled in Model ModAcK kindergartens, the only significant increase in skills from Pre-K/Head Start to kindergarten was in the area of Math ($p < .01$). In contrast, the overall G.P.A. of kindergartners in Model ModAcK/SE programs increased significantly ($p < .05$) from the previous year, as did grades in Art/Music ($p < .05$), Science ($p < .05$), Physical ($p < .001$), Social ($p < .01$), Reading ($p < .05$), and Literature ($p < .05$). A trend ($p = .11$) toward increased Math skills was also found after a year in Model ModAcK/SE kindergartens.

The current findings on Cohort 2 children support and clarify previous findings for Cohort 1 children when they were also in kindergarten. Children did make progress in skills acquisition during their year in kindergarten. However, one type of kindergarten was clearly superior in helping children to master these needed skills. Programs that believe socioemotional development is an important goal of the kindergarten experience not only increased development in this area, they also increased academic preparedness as demonstrated by notable gains in mastery of basic skills. Ironically, kindergarten programs that believed academic preparation is more important not only produced fewer increases in skills mastery; they did so at the expense of social development.

Implications of these findings are clear. For children with previous school experience, the most effective kindergartens will be ones that can foster socioemotional development. Cognitive advances will follow when adults first acknowledge the important role of social development in early learning experiences.

Differential Program Effectiveness: Sample Selection

In order to identify the different program orientations reported in the previous section, kindergarten teachers with similar beliefs about early childhood education (see Figure 3) and similar classroom practices (see Figure 4) were grouped using a cluster analysis procedure (see Appendix A for survey used to cluster teachers, modified by substituting the word kindergarten for Pre-K). In general, kindergarten teachers were more academically focused than teachers of four-year-olds.

Model ModAcK teachers endorsed moderately academic kindergartens but believed that academic preparation was a more important goal of kindergarten than socioemotional development. Model ModAcK/SE teachers were also moderately academic in their approach, but valued socioemotional development as a goal of kindergarten.

Figure 3

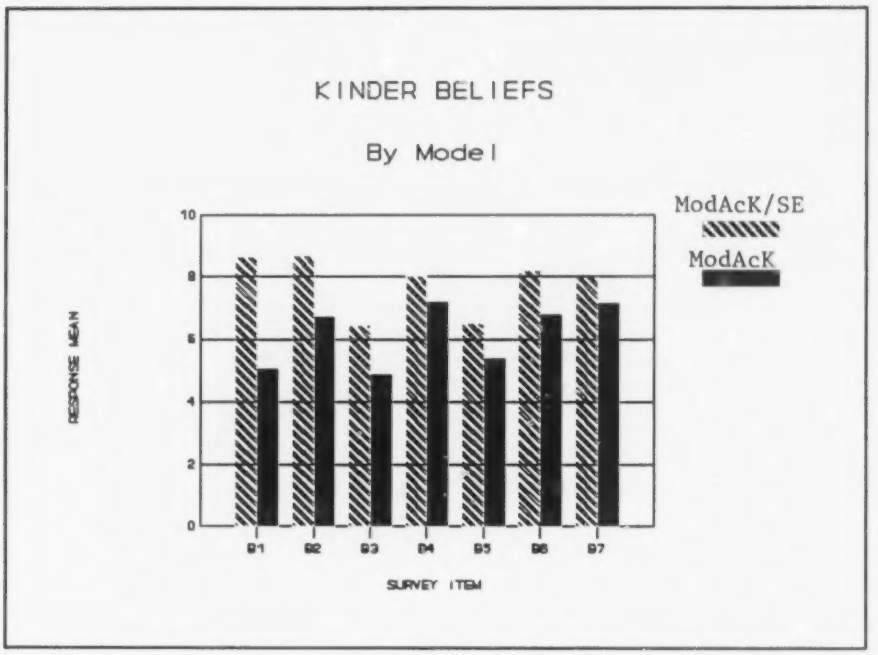
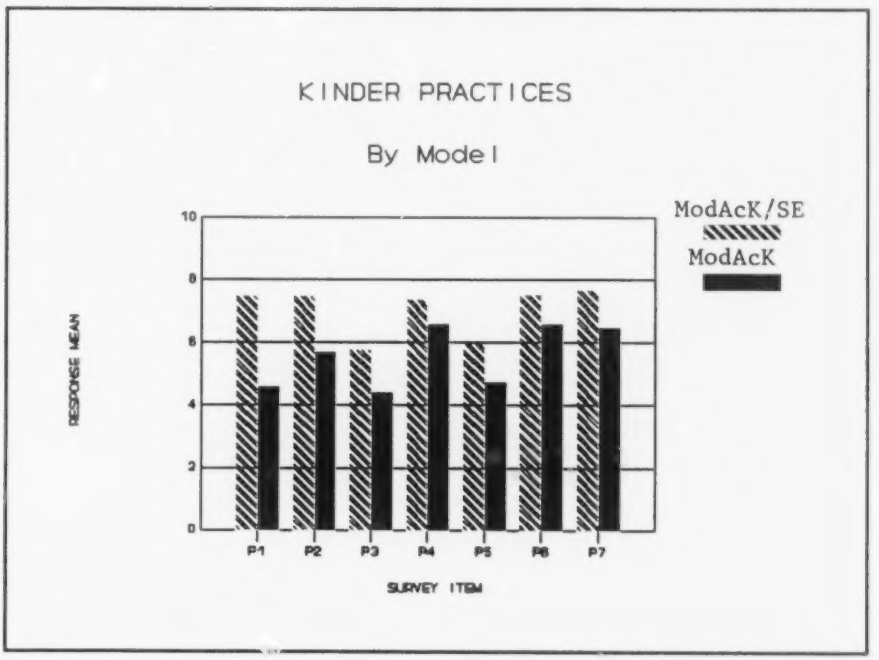


Figure 4



The sample of Cohort 2 classrooms was spread across 45 schools because children did not always attend kindergarten in the same school where their pre-kindergarten or Head Start program was located. Similarly, children from the same preschool program were not always assigned to the same kindergarten classroom. In the 1988-89 school year, Cohort 2 children were found in 76 different kindergarten classrooms across the city.

Of the 234 Cohort 2 children previously studied as preschoolers during the 1987-88 school year, 227 were found to be enrolled in the city's public kindergartens at the beginning of the 1988-89 school year. This follow-up sample differed somewhat from the initial preschool random sampling of the 'Class of 2001' (see Appendix B for Cohort 2 pre-kindergarten and kindergarten demographics). The kindergarten sample had a greater percentage of males than the original sample, and was composed of more economically impoverished children (as measured by eligibility for lunch subsidy). A greater percentage of the follow-up sample lived in single parent homes than did the original sampling of this cohort. Otherwise, age, ethnicity and pattern of school attendance were similar for both years of Cohort 2's participation in this study. Had all teachers completed the requested information for all follow-up children, the kindergarten sample would have included 227 children with prior school experience. However, as shown in Table 9 and Table 10, a total of 113 children's Vineland forms (50%) and 111 Progress Reports (49%) were returned by teachers.

Table 9

Kindergarten Sample (Cohort 2)
Vineland Data

Region	# of Children	With/ Without Pre-K	# of Schools	# of Classes	Classes in ModAcK/SE	ModAcK
A	30	25/ 5	7	8	2	6
B	44	22/22	3	4	-	4
C	11	7/ 4	5	5	4	1
D	77	59/18	11	12	3	9
Total	162	113/49	26	29	9	20

Table 10

Kindergarten Sample (Cohort 2)
Progress Report Data

Region	# of Children	With/ Without Pre-K	# of Schools	# of Classes	Classes in ModAcK/SE	ModAcK
A	28	24/ 4	6	7	2	5
B	44	22/22	3	4	-	4
C	11	7/ 4	5	5	4	1
D	76	58/18	10	11	3	8
Total	159	111/48	24	24	9	18

Due to possible economic differences among children in this follow-up and matched sample, all analyses of children's data statistically controlled such differences by using information on eligibility for subsidized lunch as a covariate.

Differential Program Effectiveness: Children's Development

Table 11 reports Vineland scores by Kindergarten model (ModAcK/SE, ModAcK) for children who had attended a DCPS pre-kindergarten or Head Start program. Model ModAcK/SE children scored significantly higher ($p < .05$) in Daily Living Skills. A trend ($p = .09$) for greater Social development among Model ModAcK/SE kindergartners was also found. Further examination of Vineland subdomains for these areas indicated Model ModAcK children were significantly behind in development of domestic self-help skills ($p < .001$), as well as interpersonal skills ($p < .01$) and play/leisure skills ($p < .01$).

Table 12 reports Vineland scores by Kindergarten model for children with no previous school experience. No statistically significant differences between kindergarten models were found for this group of children.

Table 11

Vineland Scores by Kindergarten Model (Cohort 2)
Children With Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Composite Score			
Adaptive	M	95.32	95.33
Behavior	SD	(10.82)	(15.19)
Domain Scores			
Communication	M	93.54	99.41
	SD	(13.95)	(19.84)
Daily Living	M	103.20	97.13
	SD	(10.28)	(13.46)
Social	M	93.27	88.09
	SD	(11.64)	(13.58)

Table 12

Vineland Scores by Kindergarten Model (Cohort 2)
Children Without Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Composite Score			
Adaptive	M	86.50	88.80
Behavior	SD	(22.16)	(17.83)
Domain Scores			
Communication	M	85.75	91.16
	SD	(24.73)	(20.16)
Daily Living	M	96.25	91.44
	SD	(20.32)	(18.06)
Social	M	81.00	85.27
	SD	(16.12)	(15.66)

Differential Program Effectiveness: Progress Towards Skills Mastery

Table 13 reports Progress Report grades by Kindergarten model (ModAcK/SE, ModAcK) for children who had attended a DCPS pre-kindergarten or Head Start program. No statistically significant differences between models were found, with the exception of significantly higher ($p < .05$) Science grades earned by children in Model ModAcK/SE.

Table 13

Progress Report Scores by Kindergarten Model (Cohort 2)
Children with Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Overall G.P.A.	M	2.57	2.61
	SD	(.48)	(.38)
Subareas			
Math	M	2.47	2.58
	SD	(.56)	(.42)
Art/Music	M	2.66	2.76
	SD	(.56)	(.40)
Science	M	2.57	2.29
	SD	(.59)	(.58)
Physical	M	2.82	2.72
	SD	(.39)	(.38)
Social	M	2.62	2.64
	SD	(.40)	(.42)
Reading	M	2.76	2.71
	SD	(.45)	(.45)
Listening	M	2.48	2.58
	SD	(.52)	(.43)
Literature	M	2.52	2.59
	SD	(.54)	(.48)
Work Habits	M	2.45	2.54
	SD	(.56)	(.53)

Table 14 reports Progress Report grades by Kindergarten model for children with no previous school experience. Only two areas were found to be statistically significant. Model ModAcK children earned higher grades in Listening ($p < .05$) and Literature skills ($p < .05$) than Model ModAcK/SE peers.

Table 14

Progress Report Scores by Kindergarten Model (Cohort 2)
Children Without Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Overall G.P.A.	M	2.30	2.48
	SD	(.38)	(.54)
Subareas			
Math	M	2.10	2.41
	SD	(.62)	(.59)
Art/Music	M	2.55	2.73
	SD	(.41)	(.56)
Science	M	1.90	2.14
	SD	(.14)	(.61)
Physical	M	2.58	2.57
	SD	(.46)	(.61)
Social	M	2.68	2.51
	SD	(.39)	(.51)
Reading	M	2.32	2.61
	SD	(.54)	(.59)
Listening	M	1.49	2.42
	SD	(.21)	(.63)
Literature	M	1.67	2.47
	SD	(.35)	(.67)
Work Habits	M	2.00	2.35
	SD	(.82)	(.64)

Conclusions

Compared to Cohort 1 findings of no differences between kindergarten models, Cohort 2 clearly responds better to Model ModAcK/SE kindergartens if they have had previous school experience. The current findings are easy to interpret once the composition of the current kindergarten sample is examined. Cohort 2 kindergarten data come predominantly from children who participated in the more academically focused preschool programs (Note. Few data were returned for kindergartners with a Model CI background). Interestingly, Cohort 1 results indicated that children from more academically focused preschools developed and achieved more when placed with kindergarten teachers who valued socioemotional development (Model ModAcK/SE). Based upon this previous finding and considering the sample attributes for Cohort 2, differences favoring Model ModAcK/SE would be expected. Such differences were, in fact, found.

As was also true of the previously studied group, the current group of kindergartners did noticeably better if they had attended pre-kindergarten or Head Start prior to entering kindergarten. Children who lacked prior school experience did poorer in kindergarten and even the more beneficial Model ModAcK/SE did not help these inexperienced children to 'catch up.' These children's needs deserve special consideration in future planning. At present, the most appropriate model for teaching kindergartners with no prior school experience does not appear to exist in the District of Columbia Public Schools.

A middle-of-the-road (Model M) preschool approach was least successful in preparing children to meet the demands of an academically focused kindergarten. This finding provides additional support for the earlier recommendation to eliminate Model M as an option for pre-kindergarten or Head Start programs in District schools.

Consistent with previous data, academically-directed (Model AD) pre-kindergarten experiences did not better prepare children for the demands of an academically focused kindergarten experience. There is no advantage in making the pre-kindergarten experience more like the current kindergarten experience. Nor does there appear to be any advantage in making the kindergarten experience more like the first grade experience. In fact, kindergarten programs that believe academic preparation is more important not only produced fewer increases in academic skills, they did so at the expense of social development. A downward extension of formal education into the preprimary years is not the answer for correcting deficits currently found in the primary grades and, as the current data indicate, it can even inhibit academic progress.

PROGRAM EFFECTS: FIRST GRADE

A sample of 264 DCPS children ('Class of 2000') enrolled in first grade during the 1988-89 school year was studied to determine the continuing impact of early learning experiences on children's development and mastery of basic skills. Of these 264 children, 168 had attended a DCPS pre-kindergarten or Head Start program during the 1986-87 school year and have been referred to as Cohort 1 throughout this report. The remaining 96 first graders had not attended a preschool within or outside the District of Columbia Public Schools, but did attend kindergarten in the same school and class with Cohort 1 children. These children had been matched with Cohort 1 children during their kindergarten year (1987-88) on the basis of sex, ethnicity (when possible), and kindergarten teacher. This matched pairing of children was made to determine the effect of preschool and/or kindergarten attendance on performance in first grade. Neither pre-kindergarten or kindergarten attendance were mandatory in the District of Columbia at the time of this study.

The Vineland Adaptive Behavior Scales and the DCPS Report of Pupil Progress for Elementary Grades 1A - 6B were used to monitor children's development and mastery of basic skills after a year in first grade. The Progress Report included teacher ratings of children's performance in 11 areas of study (mathematics, reading, language, spelling, handwriting, social studies, science, art, music, health, and foreign language). A grade for student citizenship was also included on the report of Pupil Progress. For first graders a third measure was used to assess academic progress. The District's Reading and Mathematics Objectives Checklist from the Student Progress Plan (SPP) was requested at the end of first grade for each child in the study. For instructional level 1B (second semester of first grade), these lists consisted of 15 different objectives that were to be mastered. In order to pass to the next instructional level (i.e., 2A) children were to master 11 of the reading and 10 of the mathematics objectives, including all critical objectives indicated by an "*" in Tables 16, 17, and 29 through 38. Reading Objectives were grouped by word perception, comprehension, and study skills. Mathematics Objectives were grouped by concepts of digits, addition and subtraction, and measurement of quantity.

Impact of Pre-K/Head Start Attendance on First Grade Performance

Three aspects of attending a pre-kindergarten or Head Start program were examined in Year Three of the Early Learning and Early Identification Study. First, the first grade performance of children who had attended a DCPS pre-kindergarten or Head Start program and kindergarten was

compared with children who had only attended kindergarten. Second, performance of children who had attended three different types of preschool programs (Model CI, Model M, Model AD) and two different types of kindergartens (Model ModAcK/SE, Model ModAcK) was compared at the end of first grade. Finally, children's developmental levels in pre-kindergarten and kindergarten were compared with development at the end of first grade.

Pre-K/Head Start versus no Pre-K/Head Start. Vineland data were returned for 47 matched pairs (47 first graders with Pre-K/Head Start and 47 first graders without Pre-K/Head Start) of children. End-of-year Progress Report data were available for 78 matched pairs. Reading Objectives data were returned for 55 first graders with Pre-K/Head Start experience and 35 first graders who had only attended kindergarten. Mathematics Objectives data were returned for 61 first graders with Pre-K/Head Start experience and 42 first graders who attended kindergarten only. Demographics of the matched sample are reported in Appendix B.

Although no significant differences between comparisons of matched pairs were found, first graders who had attended pre-kindergarten or Head Start had higher Vineland developmental scores in all areas than peers who had only attended kindergarten. As shown in Table 15, children with pre-kindergarten or Head Start experience had higher grades at the end of first grade than peers who had only attended kindergarten. These differences, however, were not statistically significant.

These findings for Vineland and Progress Report data parallel previous pilot data from the 'Class of 1999', although the current lack of statistical significance is less dramatic than pilot findings.

The percentage of children who passed each Reading Objective is reported in Table 16 for those who attended both pre-kindergarten or Head Start and kindergarten versus first graders with kindergarten experience only. No statistical tests were performed on these data. However, examination of the percentages indicates that on approximately half of the objectives more children with Pre-K/Head Start experience passed than did kindergarten only children, and on the other half more objectives were passed by children with only kindergarten experience. There were no particular strengths or weaknesses for either group of children on any of the skill groupings. The same pattern of findings is true of Mathematics Objectives reported in Table 17, with one exception. For every one of the quantity measurement skills, more children with Pre-K/Head Start experience passed these objectives than kindergarten only peers.

Table 15

First Grade Progress Report Scores for Children (Cohort 1) With and Without Pre-K/Head Start Experience

		Attended Pre-K	No Pre-K
Overall G.P.A.	M	2.80	2.67
	SD	(.78)	(.87)
Subarea			
Math	M	2.60	2.58
	SD	(1.18)	(1.22)
Reading	M	2.65	2.59
	SD	(1.31)	(1.33)
Language	M	2.74	2.62
	SD	(1.05)	(1.11)
Spelling	M	2.70	2.58
	SD	(1.30)	(1.37)
Handwriting	M	2.75	2.62
	SD	(.93)	(1.11)
Social Studies	M	2.89	2.78
	SD	(.84)	(1.02)
Science	M	2.93	2.76
	SD	(.88)	(1.03)
Art	M	2.90	2.79
	SD	(.81)	(.70)
Music	M	2.92	2.81
	SD	(.70)	(.70)
Health/P.E.	M	2.99	2.94
	SD	(.68)	(.67)
Citizenship	M	2.64	2.55
	SD	(1.12)	(1.15)

Note. Overall G.P.A. and subarea scores could range from 0.00 to 4.00, with the higher score indicative of greater skill mastery. A grade of A was scored as 4 points, B as 3 points, C as 2 points, D as 1 point and F as 0 points.

Table 16

Percentage Passing Level 1B Reading Objectives (Cohort 1)
Children With and Without Pre-K/Head Start Experience

Code	Objective	Attended Pre-K	No Pre-K
*WP/C-3	Final Consonant	95%	100%
*WP/C-4	Medial Consonant	89%	100%
WP/VOW-2	1st Short Vowel	89%	83%
WP/V-1	Sight Words	91%	89%
*WP/V-3	Context Cues	95%	94%
WP/SA-5	Compound Words	89%	91%
C/S-1	Order Pictures	85%	97%
*C/CC-1	Words in Context	85%	100%
C/SR-1	Senses Relation	98%	85%
C/MCP-1	Identify Mood	95%	97%
C/PR-1	Characteristics	82%	65%
C/PO-2	Outcomes	87%	85%
C/FJ-1	Makes Sense	91%	82%
*SS/FD-2	Written Direction	91%	100%
SS/D-1	Dictionary	77%	67%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in reading is 11.

Table 17

Percentage Passing Level 1B Math Objectives (Cohort 1)
Children With and Without Pre-K/Head Start Experience

Code	Objective	Attended Pre-K	No Pre-K
NW-9	Name Digits	93%	100%
NW-10	Name Place Value	95%	95%
*NW-11	Name Digit Value	90%	98%
NW-12	Write Expanded Notation	84%	81%
WA-2	Add 1 & 2-Digit Numbers	98%	100%
WS-2	Subtract 1-Digit from 2	95%	95%
*WA-3	Add 2-Digit Numbers	98%	98%
NW-13	Compare 2-Digit Numbers	90%	93%
*WS-3	Subtract 2-Digit Numbers	97%	100%
*WA-4	Add 3 1-Digit Numbers	98%	100%
MCL-1	Measuring Cups (>,<,=)	83%	74%
MCL-2	Standard Unit Capacities	80%	74%
MMV-1	Liter Comparison (>,<,=)	73%	51%
MCW-1	Weight (lb.)	71%	62%
MMW-1	Weight (kg.)	67%	63%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Type of Pre-K/Head Start Attended. End-of-first grade Vineland data were returned for 42 children who had previously attended a child-initiated (Model CI) preschool, 32 children from middle-of-the-road (Model M) preschools, and 48 children who had previously attended an academically-directed (Model AD) preschool. Final first grade Progress Report data were available for 61 former Model CI children, 62 former Model M children, and 69 former Model AD children.

Comparisons between these three preschool models indicated a trend ($p = .08$) for higher Social development among children who had attended Model CI preschool programs. The mean Social scores for Model CI, Model M, and Model AD respectively were 102.69, 99.62, and 94.47. Although overall standard scores for Daily Living Skills were not statistically different, analysis of the subdomain scores in this scale were. Model AD children were significantly lower in personal ($p < .01$), domestic ($p < .01$), and community ($p < .01$) skills associated with self-help.

Compared to peers in other preschool programs, Model M children had the lowest grades in all areas reported in Table 18 for the end of first grade. Their grades were significantly lower in Spelling ($p < .05$), Art ($p < .05$), and Health/P.E. ($p < .05$). Differences between Model CI and Model AD children were not significant except for higher Health/P.E. grades earned by Model CI children ($p < .05$). In general, Model CI children also earned higher grades in Handwriting, Social Studies, Science, Art, Music, and Citizenship than Model AD children. Model AD children generally earned higher grades in Math, Reading, Language, and Spelling.

While Vineland findings for Cohort 1 first graders were similar to those of children in the pilot study and confirmed Model CI's positive effect on social development, current Progress Report data were different from the pilot data. Previous data suggested that Model CI children earned the highest grades in first grade. While that finding remains true for at least some areas measured, Model AD children in Cohort 1 also performed well in many areas. At this point in time it is difficult to state which preschool model results in best first grade performance. It appears that Model CI and Model AD foster development of different types of skills and stating a preference for one set of skills over another involves a value judgment. There are multiple kinds of intelligences and each one contributes notably to our society. However, two consistencies across two years of first grade data can be stated. First, children from Model M preschools do poorer in first grade than peers from other preschool models. Second, in contrast to their peers, Model CI children continue to make progress in social development.

Table 18

First Grade Progress Report Scores by Pre-K Model (Cohort 1)
Means (M) and Standard Deviations (SD)

		Model CI	Model M	Model AD
Overall G.P.A.	M	2.77	2.53	2.81
	SD	(.93)	(.79)	(.80)
Subarea				
Math	M	2.48	2.41	2.69
	SD	(1.29)	(1.26)	(1.18)
Reading	M	2.41	2.33	2.75
	SD	(1.46)	(1.30)	(1.28)
Language	M	2.61	2.48	2.82
	SD	(1.09)	(1.04)	(1.09)
Spelling	M	2.72	2.32	2.93
	SD	(1.38)	(1.29)	(1.19)
Handwriting	M	2.70	2.51	2.65
	SD	(1.14)	(.83)	(1.07)
Social Studies	M	2.88	2.56	2.79
	SD	(1.02)	(.87)	(.92)
Science	M	2.88	2.61	2.82
	SD	(1.07)	(.94)	(.89)
Art	M	3.00	2.59	2.97
	SD	(.94)	(.66)	(.76)
Music	M	2.89	2.83	2.88
	SD	(.85)	(.74)	(.69)
Health/P.E.	M	3.18	2.79	2.89
	SD	(.86)	(.55)	(.67)
Citizenship	M	2.82	2.37	2.71
	SD	(1.10)	(1.15)	(1.00)

Type of Kindergarten Attended. End-of-first grade Vineland data were returned for 65 children who had previously attended ModAcK/SE kindergartens (38 of these also attended pre-kindergarten or Head Start in DCPS). Vineland data for 115 children who had attended ModAcK kindergartens was available (74 of these had attended pre-kindergarten or Head Start in DCPS). End-of-first grade Progress Report data were available for 89 children from ModAcK/SE kindergartens (51 of these had Pre-K/Head Start experience) and 181 children from ModAcK kindergartens (118 of these had attended pre-kindergarten or Head Start).

As shown in Tables 19 and 20, all first grade Vineland scores of children from ModAcK/SE kindergartens were higher than scores of Model ModAcK peers. For children with Pre-K/Head Start experience, these differences were statistically significant for Composite Adaptive Behavior ($p < .01$), Communication ($p < .05$), Daily Living ($p = .06$), and Social development ($p < .01$). For children who had not attended pre-kindergarten or Head Start, only Social development of ModAcK/SE children was significantly ahead ($p < .05$) of peers from ModAcK kindergartens.

Table 19

First Grade Vineland Scores by Kindergarten Model (Cohort 1)
Children Who Attended Pre-K/Head Start

		ModAcK/SE	ModAcK
Composite Score			
Adaptive	M	108.97	96.11
Behavior	SD	(21.75)	(18.28)
Domain Scores			
Communication	M	108.20	98.16
	SD	(19.21)	(18.75)
Daily Living	M	106.18	98.01
	SD	(16.37)	(17.22)
Social	M	106.82	93.72
	SD	(22.35)	(16.63)

Table 20

First Grade Vineland Scores by Kindergarten Model (Cohort 1)
Children Without Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Composite Score			
Adaptive	M	105.26	93.63
Behavior	SD	(27.22)	(18.66)
Domain Scores			
Communication	M	103.04	97.51
	SD	(22.34)	(18.11)
Daily Living	M	103.96	95.17
	SD	(18.89)	(16.41)
Social	M	106.56	90.95
	SD	(27.25)	(17.54)

As shown in Tables 21 and 22, kindergarten models affected first grade Progress Report data differently depending on children's previous school experience. First graders with Pre-K/Head Start experience who attended ModAcK/SE kindergartens earned higher grades in all areas except citizenship. Although a trend towards significance ($p = .12$) was found for Science grades, the smaller sample size for ModAcK/SE (only 30% of the first graders) caused other differences to be statistically nonsignificant. By contrast, first graders who had only attended ModAcK kindergartens earned higher grades in all areas except art, music, and health. Differences in Reading ($p = .08$) and Science ($p = .08$) tended towards statistical significance. Health/P.E. was the only subject in which Model ModAcK/SE children lacking Pre-K/Head Start experience tended to score higher ($p = .09$).

Table 21

Progress Report Scores by Kindergarten Model (Cohort 1)
Children With Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Overall G.P.A.	M	2.80	2.64
	SD	(.93)	(.80)
Subareas			
Math	M	2.74	2.40
	SD	(1.25)	(1.22)
Reading	M	2.56	2.47
	SD	(1.42)	(1.32)
Language	M	2.78	2.56
	SD	(1.11)	(1.08)
Spelling	M	2.78	2.57
	SD	(1.37)	(1.32)
Handwriting	M	2.76	2.56
	SD	(1.09)	(1.01)
Social Studies	M	2.92	2.68
	SD	(1.03)	(.92)
Science	M	2.98	2.67
	SD	(.99)	(.96)
Art	M	3.02	2.78
	SD	(.90)	(.75)
Music	M	2.96	2.77
	SD	(.82)	(.69)
Health/P.E.	M	3.08	2.87
	SD	(.78)	(.65)
Citizenship	M	2.63	2.64
	SD	(1.29)	(1.04)

Note. Overall Grade Point Average (G.P.A.) and subarea scores could range from 0.00 (all Fs) to 4.00 (all As).

Table 22

Progress Report Scores by Kindergarten Model (Cohort 1)
Children Without Pre-K/Head Start Experience

		ModAcK/SE	ModAcK
Overall G.P.A.	M	2.67	2.71
	SD	(.99)	(.74)
Subareas			
Math	M	2.47	2.56
	SD	(1.39)	(1.12)
Reading	M	2.36	2.65
	SD	(1.44)	(1.29)
Language	M	2.60	2.69
	SD	(1.22)	(1.06)
Spelling	M	2.47	2.64
	SD	(1.50)	(1.31)
Handwriting	M	2.58	2.70
	SD	(1.13)	(.92)
Social Studies	M	2.74	2.84
	SD	(1.13)	(.86)
Science	M	2.74	2.87
	SD	(1.13)	(.93)
Art	M	2.86	2.82
	SD	(.86)	(.72)
Music	M	2.97	2.77
	SD	(.64)	(.69)
Health/P.E.	M	3.12	2.81
	SD	(.77)	(.57)
Citizenship	M	2.54	2.67
	SD	(1.32)	(1.04)

Pre-K/Head Start to Kindergarten to First Grade. For 88 children in the 'Class of 2000' Vineland data were available from Pre-K/Head Start to first grade. Vineland data were also available for 66 children from kindergarten to first grade. Only Vineland data were used to trace changes over time in Cohort 1 because different Progress Report forms are used at the first grade level.

Overall comparisons between Vineland scores at the end of pre-kindergarten or Head Start and Vineland scores at the end of first grade showed no significant differences, although children in Model CI and Model M preschools had significantly higher ($p < .05$ and $p < .001$, respectively) Adaptive Behavior Composite scores at the end of first grade. This was not true of children from Model AD preschools who actually displayed lower Adaptive Behavior at the end of first grade compared with earlier developmental scores. By the end of first grade, Model AD children also tended to be lower ($p = .08$) in Social development for their age than they had been at the end of preschool two years earlier. In contrast, Model CI and Model M children in Cohort 1 increased significantly ($p < .05$) in Social development across the study years.

Overall comparisons between Vineland scores at the end of kindergarten and Vineland scores at the end of first grade for children who had also attended Pre-K/Head Start showed a significant increase ($p < .01$) in Social development. Children in Model ModAcK/SE kindergartens also made significant gains ($p < .001$) in Adaptive Behavior while the Adaptive Behavior scores of Model ModAcK children decreased significantly ($p < .05$) from kindergarten to first grade. While experienced children from ModAcK/SE kindergartens continued to make significant increases in Communication ($p < .01$), Daily Living Skills ($p < .001$), and Social development ($p < .001$), experienced children from Model ModAcK kindergartens tended to decrease in Communication ($p = .08$) and Daily Living Skills ($p = .09$). By the end of first grade, Model ModAcK children were also lower in Social development for their age than they had been the previous year.

Comparisons between kindergarten and first grade Vineland scores of children who had not attended Pre-K/Head Start also indicated significant increases in Social development ($p < .05$) by the end of first grade. Adaptive Behavior of inexperienced children from ModAcK/SE kindergartens increased significantly ($p < .001$) while Adaptive Behavior scores of ModAcK children dropped significantly ($p < .01$) from kindergarten to first grade. The same pattern was true for all other Vineland domains. Communication ($p < .05$), Daily Living ($p < .01$) and Social development ($p < .001$) of inexperienced ModAcK/SE children rose significantly from kindergarten to first grade.

Communication ($p = .09$), Daily Living ($p < .05$), and Social development ($p < .01$) of inexperienced ModAcK children decreased significantly from kindergarten to first grade.

Differential Program Effectiveness: Sample Selection

In order to identify different program orientations first grade teachers with similar beliefs about primary education (see Figure 5) and similar classroom practices (see Figure 6) were grouped using a cluster analysis procedure (see Appendix A for survey used to cluster teachers, modified by substituting the words 'first grade' for Pre-K). In general, first grade teachers in the District of Columbia Public Schools were academically focused and the two models of first grade identified through cluster analysis reflected this academic nature of programs for six-year-olds. Neither of the two first grade models is as child-initiated as preschool Model CI (child-initiated).

A comparison of Figures 1 and 2 with Figures 5 and 6 shows one cluster of first grade teachers resembles the 'middle-of-the-road' preschool model. While these first grade teachers saw themselves as facilitators in a more child-centered classroom, they did not endorse such practices as strongly as child-initiated preschool teachers did. Classrooms of these middle-of-the-road facilitators are referred to as first grade Model MF. The other grouping of first grade teachers endorsed a slightly more teacher-initiated content approach to first grade and are referred to as first grade Model TIC.

The sample of Cohort 1 first grade classrooms was spread across 70 schools because children did not always attend first grade in the same school where their kindergarten or pre-kindergarten program was located. Similarly, children from the same kindergarten program were not always assigned to the same first grade classroom. In the 1988-89 school year, Cohort 1 children were found in 139 different first grade classrooms across the city.

Of the 285 Cohort 1 children previously studied as kindergartners during the 1987-88 school year, 234 were found to be enrolled in DCPS first grade classes at the beginning of the 1988-89 school year. This follow-up sample was more economically disadvantaged than the original sampling of Cohort 1 and ethnically less diverse. More children in the follow-up sample came from single parent homes. Differences in sample demographics were expected because more affluent or upwardly mobile families often withdraw children from the public school system following participation in preprimary programs.

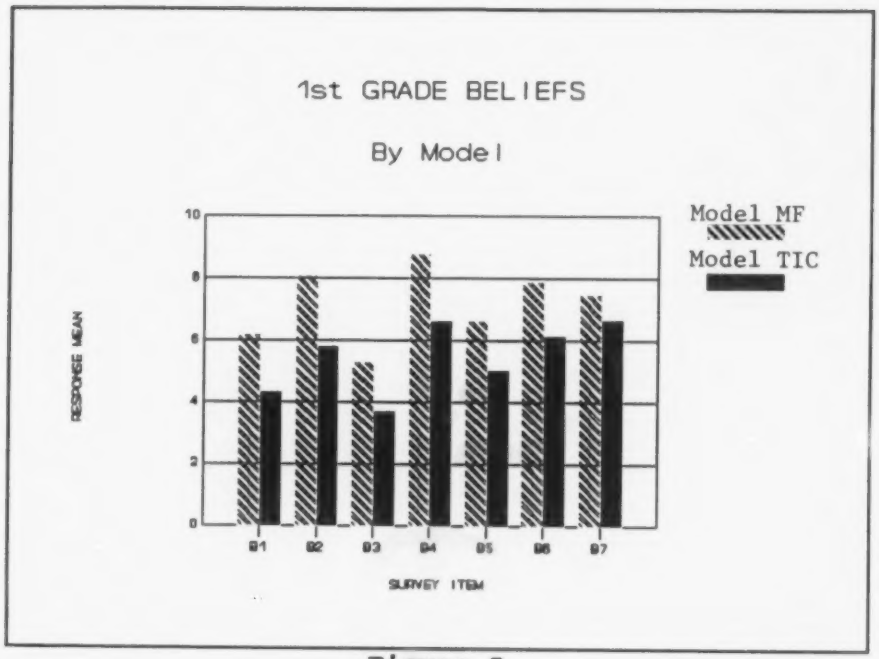


Figure 5

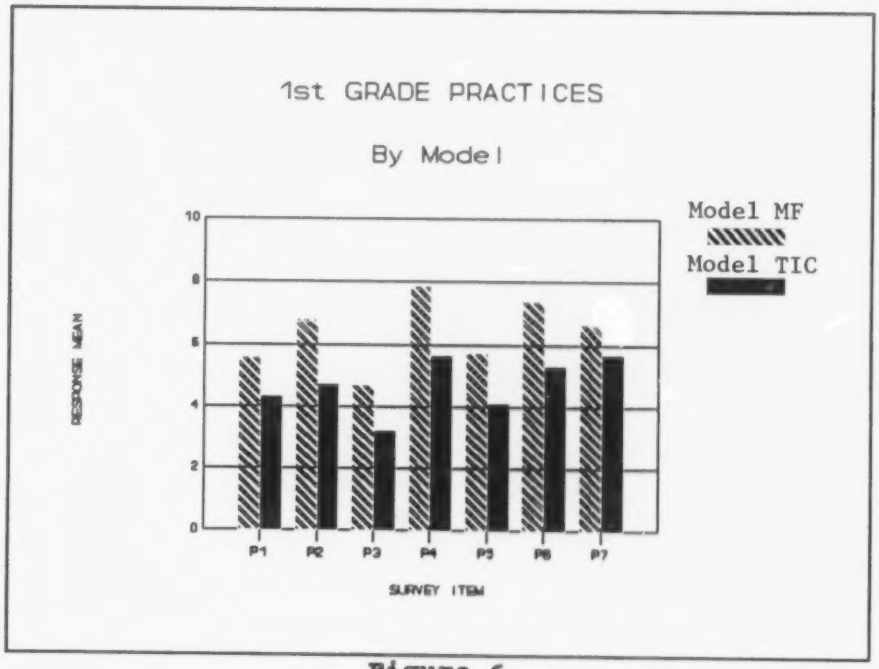


Figure 6

Had all teachers completed the requested information for all follow-up children, the first grade sample would have included 234 children with pre-kindergarten or Head Start experience and 100 children without Pre-K/Head Start. However, as shown in Tables 23 and 24, a total of 186 children's Vineland forms (56%) and 264 Progress Reports (79%) were returned by teachers.

Table 23

First Grade Sample (Cohort 1)
Vineland Data

Region	# of Children	With/ Without Pre-K	# of Schools	# of Classes	Classes in ModAcK/SE	ModAcK
A	53	36/17	13	22	7	15
B	33	19/14	2	4	1	3
C	31	22/ 9	11	13	8	5
D	69	41/28	16	25	14	11
Total	186	118/68	42	64	30	34

Table 24

First Grade Sample (Cohort 1)
Progress Report Data

Region	# of Children	With/ Without Pre-K	# of Schools	# of Classes	Classes in ModAcK/SE	ModAcK
A	78	51/27	17	31	12	19
B	43	25/18	5	7	2	5
C	60	41/19	19	29	14	15
D	83	51/32	19	34	19	15
Total	264	168/96	60	101	47	54

Due to possible economic differences among children in this follow-up sample of first graders, all analyses of children's data statistically controlled such differences by using information on eligibility for subsidized lunch as a covariate.

Differential Program Effectiveness: Children's Development

Table 25 reports Vineland scores by first grade model (Model MF, Model TIC) for children who had attended a DCPS pre-kindergarten or Head Start program. Model TIC children scored significantly higher in Adaptive Behavior ($p < .05$) and Social development ($p < .001$) than peers in Model MF first grades. A trend ($p = .06$) towards higher Communication scores was also found for Model TIC children at the end of first grade. Further examination of Vineland subdomains indicated Model TIC children were significantly ahead of their peers in development of personal self-help skills ($p < .01$), play and leisure skills ($p < .01$), coping skills ($p < .01$), and written communication skills ($p < .05$). There was also a trend for Model TIC children to have more highly developed interpersonal skills ($p = .06$) and expressive communication skills ($p = .07$) than Model MF first graders. However, for the combined sample Social development was still significantly lower ($p < .01$) than any other area of development.

Table 25

Vineland Scores by First Grade Model (Cohort 1)
Children With Pre-K/Head Start Experience

		Model MF	Model TIC
Composite Score			
Adaptive	M	97.10	104.94
Behavior	SD	(19.77)	(20.58)
Domain Score			
Communication	M	98.72	105.32
	SD	(20.92)	(18.93)
Daily Living	M	100.42	103.78
	SD	(17.66)	(17.08)
Social	M	92.44	103.22
	SD	(14.59)	(20.73)

Table 26 reports Vineland scores by first grade model for children who did not attend pre-kindergarten or Head Start prior to entering kindergarten. Model TIC children scored significantly higher on Adaptive Behavior ($p < .05$) and Social development ($p < .001$) than peers from Model MF first grade classrooms. A trend ($p = .07$) for higher Daily Living Skills was also found for Model TIC first graders. Further examination of Vineland subdomains indicated Model TIC children were significantly ahead of their peers in developing interpersonal ($p < .05$), play and leisure ($p < .001$), and coping skills ($p < .05$). Although Model TIC children displayed stronger domestic skills than Model MF ($p < .01$), they were weaker on the community skills component of Daily Living ($p < .01$).

Table 26

First Grade Vineland Scores by First Grade Model (Cohort 1)
Children Without Pre-K/Head Start Experience

		Model MF	Model TIC
Composite Score			
Adaptive	M	91.19	104.05
Behavior	SD	(19.04)	(24.03)
Domain Scores			
Communication	M	95.38	102.85
	SD	(20.18)	(19.89)
Daily Living	M	94.38	102.70
	SD	(16.33)	(17.72)
Social	M	86.92	105.40
	SD	(16.27)	(23.45)

Differential Program Effectiveness: Progress Towards Skills Mastery

Table 27 reports Progress Report grades by first grade model (Model MF, Model TIC) for children with Pre-K/Head Start experience. While Model TIC children earned higher grades than Model MF first graders in all subject areas

except Music and Citizenship, only differences in Language grades were significant ($p < .01$). There was also a slight trend ($p = .11$) towards higher Reading grades in Model TIC.

Table 27

Progress Report Scores by First Grade Model (Cohort 1) Children With Pre-K/Head Start Experience

		Model MF	Model TIC
Overall G.P.A.	M	2.66	2.79
	SD	(.80)	(.84)
Subareas			
Math	M	2.43	2.72
	SD	(1.19)	(1.23)
Reading	M	2.33	2.69
	SD	(1.40)	(1.29)
Language	M	2.42	2.83
	SD	(1.11)	(1.04)
Spelling	M	2.53	2.77
	SD	(1.24)	(1.32)
Handwriting	M	2.58	2.72
	SD	(.97)	(1.02)
Social Studies	M	2.71	2.85
	SD	(.91)	(.93)
Science	M	2.74	2.87
	SD	(.90)	(.97)
Art	M	2.82	2.88
	SD	(.79)	(.76)
Music	M	2.95	2.87
	SD	(.78)	(.69)
Health/P.E.	M	2.90	2.98
	SD	(.69)	(.63)
Citizenship	M	2.73	2.58
	SD	(1.08)	(1.11)

Table 28

Progress Report Scores by First Grade Model (Cohort 1)
Children Without Pre-K/Head Start Experience

		Model MF	Model TIC
Overall G.P.A.	M	2.66	2.73
	SD	(.83)	(.87)
Subareas			
Math	M	2.47	2.53
	SD	(1.18)	(1.32)
Reading	M	2.50	2.54
	SD	(1.38)	(1.36)
Language	M	2.63	2.65
	SD	(1.00)	(1.17)
Spelling	M	2.52	2.64
	SD	(1.41)	(1.34)
Handwriting	M	2.60	2.76
	SD	(1.03)	(1.05)
Social Studies	M	2.79	2.83
	SD	(.99)	(1.02)
Science	M	2.79	2.83
	SD	(.99)	(1.04)
Art	M	2.77	2.90
	SD	(.72)	(.86)
Music	M	2.83	2.85
	SD	(.73)	(.68)
Health/P.E.	M	2.80	3.04
	SD	(.63)	(.71)
Citizenship	M	2.54	2.73
	SD	(1.21)	(1.12)

Table 28 reports Progress Report grades by first grade model for children who did not attend pre-kindergarten or Head Start prior to entering kindergarten. While Model TIC children earned higher grades overall and in all subject areas than Model MF first graders, only differences in Health/P.E. grades showed a slight trend ($p = .12$) towards significance.

Differential Program Effectiveness: Objectives Checklist

First Grade Model: Reading. For each first grade model (Model MF, Model TIC), Tables 29 and 30 report the percentage of students (with and without Pre-K/Head Start) who passed each Reading Objective. Model MF children with Pre-K/Head Start experience had a lower mean objective pass rate (83%) than Model TIC children (92.7%). For three objectives this difference in pass rate was statistically significant. Model MF first graders were weaker on Objective *WP/V-3 Context Cues ($p < .01$), Objective *C/CC-1 Words in Context ($p < .01$), and Objective C/FJ-1 Makes Sense ($p < .05$). For children without Pre-K/Head Start experience no significant differences were found although Model MF children did have a lower mean objective pass rate (86.5%) than Model TIC children (91.1%). Comparisons of overall mean pass rates for children with and without Pre-K/Head Start experience yielded no significant differences on the Reading Objectives Checklist.

First Grade Model: Math. Tables 31 and 32 report the percentage of students (with and without Pre-K/Head Start experience) who passed each Mathematics Objective for each first grade model. Again Model MF children with Pre-K/Head Start experience had a lower mean objective pass rate (84.3%) than Model TIC children (89%). For three objectives this difference in pass rate was statistically significant. Model MF first graders were weaker on Objective NW-10 Name Place Value ($p < .01$), Objective *NW-11 Name Digit Value ($p < .01$), and Objective *WS-3 Subtract 2-Digit Numbers ($p < .05$). For children without Pre-K/Head Start experience mean objective pass rates were equivalent for Model MF (85.2%) and Model TIC (85.9%). However, two objectives did show a significant difference in pass rate. Model MF first graders were weaker on Objective *NW-11 Name Digit Value ($p < .01$) and Objective WS-2 Subtract 1-Digit from 2-Digits ($p < .05$). Comparisons of overall mean pass rates for children with and without Pre-K/Head Start experience yielded one significant difference ($p < .01$) for first grade math skills. Twice as many children with no Pre-K/Head Start experience failed Objective MCW-1 Weight (lbs.).

Table 29

Percentage Passing Level 1B Reading Objectives
by First Grade Model (Cohort 1)
Children With Pre-K/Head Start Experience

Code	Objective	Model MF	Model TIC
*WP/C-3	Final Consonant	90%	97.1%
*WP/C-4	Medial Consonant	85%	91.2%
WP/VOW-2	1st Short Vowel	80%	94.1%
WP/V-1	Sight Words	85%	94.1%
*WP/V-3	Context Cues	85%	100%
WP/SA-5	Compound Words	85%	91.2%
C/S-1	Order Pictures	85%	85.3%
*C/CC-1	Words in Context	70%	94.1%
C/SR-1	Senses Relation	95%	100%
C/MCP-1	Identify Mood	95%	94.1%
C/PR-1	Characteristics	80%	82.4%
C/PO-2	Outcomes	80%	91.2%
C/FJ-1	Makes Sense	80%	97.1%
*SS/FD-2	Written Direction	85%	94.1%
SS/D-1	Dictionary	65%	84.4%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in reading is 11.

Table 30

Percentage Passing Level 1B Reading Objectives
by First Grade Model (Cohort 1)
Children Without Pre-K/Head Start Experience

Code	Objective	Model MF	Model TIC
*WP/C-3	Final Consonant	100%	100%
*WP/C-4	Medial Consonant	100%	100%
WP/VOW-2	1st Short Vowel	75%	89.5%
WP/V-1	Sight Words	81.3%	94.7%
*WP/V-3	Context Cues	93.8%	94.7%
WP/SA-5	Compound Words	87.5%	94.7%
C/S-1	Order Pictures	100%	94.7%
*C/CC-1	Words in Context	100%	100%
C/SR-1	Senses Relation	80%	89.5%
C/MCP-1	Identify Mood	93.3%	100%
C/PR-1	Characteristics	53.3%	73.7%
C/PO-2	Outcomes	86.7%	84.2%
C/FJ-1	Makes Sense	80%	84.2%
*SS/FD-2	Written Direction	100%	100%
SS/D-1	Dictionary	66.7%	66.7%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in reading is 11.

Table 31

Percentage Passing Level 1B Mathematics Objectives
by First Grade Model (Cohort 1)
Children With Pre-K/Head Start Experience

Code	Objective	Model MF	Model TIC
NW-9	Name Digits	90%	95%
NW-10	Name Place Value	85%	100%
*NW-11	Name Digit Value	75%	97.5%
NW-12	Write Expanded Notation	85%	82.5%
WA-2	Add 1 & 2-Digit Numbers	95%	100%
WS-2	Subtract 1-Digit from 2	90%	97.5%
*WA-3	Add 2-Digit Numbers	95%	100%
NW-13	Compare 2-Digit Numbers	85%	92.5%
*WS-3	Subtract 2-Digit Numbers	90%	100%
*WA-4	Add 3 1-Digit Numbers	95%	100%
MCL-1	Measuring Cups (>,<,=)	85%	84.2%
MCL-2	Standard Unit Capacities	80%	78.9%
MMV-1	Liter Comparison (>,<,=)	75%	71.1%
MCW-1	Weight (lb.)	75%	68.4%
MMW-1	Weight (kg.)	65%	67.6%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Table 32

Percentage Passing Level 1B Mathematics Objectives
by First Grade Model (Cohort 1)
Children Without Pre-K/Head Start Experience

Code	Objective	Model MF	Model TIC
NW-9	Name Digits	100%	100%
NW-10	Name Place Value	87.5%	100%
*NW-11	Name Digit Value	93.8%	100%
NW-12	Write Expanded Notation	75%	84.6%
WA-2	Add 1 & 2-Digit Numbers	100%	100%
WS-2	Subtract 1-Digit from 2	87.5%	100%
*WA-3	Add 2-Digit Numbers	93.8%	100%
NW-13	Compare 2-Digit Numbers	93.3%	92.3%
*WS-3	Subtract 2-Digit Numbers	100%	100%
*WA-4	Add 3 1-Digit Numbers	100%	100%
MCL-1	Measuring Cups (>,<,=)	85.7%	68%
MCL-2	Standard Unit Capacities	78.6%	72%
MMV-1	Liter Comparison (>,<,=)	57.1%	48%
MCW-1	Weight (lb.)	64.3%	60%
MMW-1	Weight (kg.)	61.5%	64%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Kindergarten Model: Reading. For each kindergarten model (ModAcK/SE, ModAcK), Tables 33 and 34 report the percentage of first grade students (with and without Pre-K/Head Start) who passed each Reading Objective. Model ModAcK children with Pre-K/Head Start experience had a lower mean objective pass rate (85.5%) than Model ModAcK/SE children (93.7%). For four objectives this difference in pass rate was statistically significant. First graders from ModAcK kindergartens were weaker on Objective *WP/V-3 Context Cues ($p = .08$), Objective C/PR-1 Characteristics ($p < .05$), Objective C/FJ-1 Makes Sense ($p < .05$) and Objective *SS/FD-2 Written Directions ($p < .05$). For children without Pre-K/Head Start experience no significant differences were found although first graders from ModAcK kindergartens did have a lower mean objective pass rate (88.2%) than children from ModAcK/SE kindergartens (90.6%).

Kindergarten Model: Mathematics. Tables 35 and 36 report the percentage of first grade students (with and without Pre-K/Head Start) who passed each Mathematics Objective for each kindergarten model attended. Again ModAcK children with Pre-K/Head Start experience had a lower mean objective pass rate (85.4%) than ModAcK/SE children (91.1%). For four of these objectives this difference in pass rate was statistically significant. First graders from ModAcK kindergartners were weaker on Objective NW-9 Name Digits ($p < .05$), Objective *NW-11 Name Digit Value ($p < .01$), Objective NW-12 Write Expanded Notation ($p < .05$), Objective Compare 2-Digit Numbers ($p < .01$). For children without Pre-K/Head Start experience no significant differences were found although first graders from ModAcK kindergartens did have a lower mean objective pass rate (84.6%) than children from ModAcK/SE kindergartens (86.9%).

Pre-K/Head Start Model: Reading. For each preschool model (Model CI, Model M, Model AD), Table 37 reports the percentage of students who passed each Reading Objective. First graders who had attended Model AD preschools had a lower mean objective pass rate (83.8%) than Model M (86.9%) or Model CI (91.3%) children. First graders from Model AD pre-kindergartens were weaker on Objective WP/SA-5 Compound Words ($p = .08$).

Pre-K/Head Start Model: Math. Table 38 reports percentage of students who passed each Mathematics Objective for each preschool model. Again Model AD children had a lower mean objective pass rate (77.1%) than Model M (91.4%) and Model CI (92.8%) children. For five objectives this difference in pass rate was statistically significant. First graders from Model AD preschools were weaker on Objective WS-2 Subtract 1-Digit from 2-Digits ($p < .05$), Objective MCL-2 Standard Unit Capacities ($p < .05$), Objective MMV-1 Liter Comparison ($p < .05$), Objective MCW-1 Weight (lb.) ($p = .06$) and Objective MMW-1 Weight (kg.) ($p < .05$).

Table 33

Percentage Passing Level 1B Reading Objectives
by Kindergarten Model (Cohort 1)
Children With Pre-K/Head Start Experience

Code	Objective	ModAcK/SE	ModAcK
*WP/C-3	Final Consonant	94.7%	93.5%
*WP/C-4	Medial Consonant	94.7%	83.9%
WP/VOW-2	1st Short Vowel	89.5%	87.1%
WP/V-1	Sight Words	94.7%	87.1%
*WP/V-3	Context Cues	100%	90.3%
WP/SA-5	Compound Words	94.7%	83.9%
C/S-1	Order Pictures	89.5%	80.6%
*C/CC-1	Words in Context	94.7%	80.6%
C/SR-1	Senses Relation	100%	96.8%
C/MCP-1	Identify Mood	94.7%	93.5%
C/PR-1	Characteristics	94.7%	74.2%
C/PO-2	Outcomes	84.2%	87.1%
C/FJ-1	Makes Sense	100%	83.9%
*SS/FD-2	Written Direction	100%	83.9%
SS/D-1	Dictionary	78.9%	75.9%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in reading is 11.

Table 34

Percentage Passing Level 1B Reading Objectives
by Kindergarten Model (Cohort 1)
Children Without Pre-K/Head Start Experience

Code	Objective	ModAcK/SE	ModAcK
*WP/C-3	Final Consonant	100%	100%
*WP/C-4	Medial Consonant	100%	100%
WP/VOW-2	1st Short Vowel	83.3%	82.6%
WP/V-1	Sight Words	91.7%	87%
*WP/V-3	Context Cues	91.7%	95.7%
WP/SA-5	Compound Words	100%	87%
C/S-1	Order Pictures	100%	95.5%
*C/CC-1	Words in Context	100%	100%
C/SR-1	Senses Relation	91.7%	81.8%
C/MCP-1	Identify Mood	100%	95.5%
C/PR-1	Characteristics	58.3%	68.2%
C/PO-2	Outcomes	83.3%	86.4%
C/FJ-1	Makes Sense	91.7%	77.3%
*SS/FD-2	Written Direction	100%	100%
SS/D-1	Dictionary	66.7%	66.7%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical to be mastered at the 1B instructional level in reading is 11.

Table 35

Percentage Passing Level 1B Mathematics Objectives
by Kindergarten Model (Cohort 1)
Children With Pre-K/Head Start Experience

Code	Objective	ModAcK/SE	ModAcK
NW-9	Name Digits	100%	87.9%
NW-10	Name Place Value	100%	90.9%
*NW-11	Name Digit Value	100%	84.8%
NW-12	Write Expanded Notation	95.5%	75.8%
WA-2	Add 1 & 2-Digit Numbers	100%	97%
WS-2	Subtract 1-Digit from 2	100%	93.9%
*WA-3	Add 2-Digit Numbers	100%	97%
NW-13	Compare 2-Digit Numbers	100%	84.8%
*WS-3	Subtract 2-Digit Numbers	100%	93.9%
*WA-4	Add 3 1-Digit Numbers	100%	97%
MCL-1	Measuring Cups (>,<,=)	86.4%	77.4%
MCL-2	Standard Unit Capacities	72.7%	83.9%
MMV-1	Liter Comparison (>,<,=)	68.2%	74.2%
MCW-1	Weight (lb.)	72.7%	74.2%
MMW-1	Weight (kg.)	71.4%	67.7%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Table 36

Percentage Passing Level 1B Mathematics Objectives
by Kindergarten Model (Cohort 1)
Children Without Pre-K/Head Start Experience

Code	Objective	ModAcK/SE	ModAcK
NW-9	Name Digits	100%	100%
NW-10	Name Place Value	94.1%	96%
*NW-11	Name Digit Value	100%	96%
NW-12	Write Expanded Notation	82.4%	80%
WA-2	Add 1 & 2-Digit Numbers	100%	100%
WS-2	Subtract 1-Digit from 2	100%	92%
*WA-3	Add 2-Digit Numbers	100%	96%
NW-13	Compare 2-Digit Numbers	94.1%	91.7%
*WS-3	Subtract 2-Digit Numbers	100%	100%
*WA-4	Add 3 1-Digit Numbers	100%	100%
MCL-1	Measuring Cups (>,<,=)	70.6%	77.3%
MCL-2	Standard Unit Capacities	76.5%	72.7%
MMV-1	Liter Comparison (>,<,=)	47.1%	54.5%
MCW-1	Weight (lb.)	64.7%	59.1%
MMW-1	Weight (kg.)	75%	54.5%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Table 37

Percentage Passing Level 1B Reading Objectives
by Preschool Model (Cohort 1)

Code	Objective	Model CI	Model M	Model AD
*WP/C-3	Final Consonant	95.7%	92.9%	94.4%
*WP/C-4	Medial Consonant	91.3%	85.7%	88.9%
WP/VOW-2	1st Short Vowel	91.3%	92.9%	83.3%
WP/V-1	Sight Words	91.3%	100%	83.3%
*WP/V-3	Context Cues	95.7%	100%	88.9%
WP/SA-5	Compound Words	91.3%	100%	77.8%
C/S-1	Order Pictures	91.3%	85.7%	77.8%
*C/CC-1	Words in Context	91.3%	85.7%	77.8%
C/SR-1	Senses Relation	100%	100%	94.4%
C/MCP-1	Identify Mood	95.7%	92.9%	94.4%
C/PR-1	Characteristics	82.6%	92.9%	72.2%
C/PO-2	Outcomes	87%	85.7%	88.9%
C/FJ-1	Makes Sense	91.3%	100%	83.3%
*SS/FD-2	Written Direction	91.3%	92.9%	88.9%
SS/D-1	Dictionary	82.6%	85.7%	62.5%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in reading is 11.

Table 38

Percentage Passing Level 1B Mathematics Objectives
by Preschool Model (Cohort 1)

Code	Objective	Model CI	Model M	Model AD
NW-9	Name Digits	96.3%	92.9%	90%
NW-10	Name Place Value	100%	92.9%	90%
*NW-11	Name Digit Value	96.3%	92.9%	80%
NW-12	Write Expanded Notation	88.9%	78.6%	80%
WA-2	Add 1 & 2-Digit Numbers	100%	100%	95%
WS-2	Subtract 1-Digit from 2	100%	100%	85%
*WA-3	Add 2-Digit Numbers	100%	100%	95%
NW-13	Compare 2-Digit Numbers	96.3%	85.7%	85%
*WS-3	Subtract 2-Digit Numbers	100%	100%	90%
*WA-4	Add 3 1-Digit Numbers	100%	100%	95%
MCL-1	Measuring Cups (>,<,=)	88.9%	92.9%	66.7%
MCL-2	Standard Unit Capacities	85.2%	92.9%	61.1%
MMV-1	Liter Comparison (>,<,=)	81.5%	85.7%	50%
MCW-1	Weight (lb.)	81.5%	78.6%	50%
MMW-1	Weight (kg.)	76.9%	78.6%	44.4%

Note. Critical objectives are indicated by *. The minimum number of objectives (including critical) to be mastered at the 1B instructional level in mathematics is 10.

Conclusions

As was also true of previous pilot data for first graders, attending pre-kindergarten or Head Start prior to entering kindergarten and first grade was beneficial. However, the type of preschool program can have an impact on later school performance and development. First graders who attended Model M (middle-of-the-road) preschools ended up with lower grades by the end of first grade. The other two preschool programs (Model CI and Model AD) tended to produce fairly equal achievement levels in first grade but fostered different types of skills development. Developmentally Model AD children decreased in self-help skills over time and lost ground in social development as they progressed through the school system. By contrast, Model CI children were higher in social development than other peers at the end of first grade. These differences are noteworthy and could have important long-term implications for school achievement, as well as later adjustment.

The type of kindergarten attended also had an affect on performance in first grade. Regardless of whether or not children had attended Pre-K/Head Start, kindergarten programs that valued socioemotional development (ModAcK/SE) fostered greater development in first graders than did programs emphasizing academic preparation. This was especially noticeable for social development. Socioemotional kindergartens also fostered higher academic performance in first graders who had attended pre-kindergarten or Head Start. However, for children who entered first grade with only a kindergarten experience, kindergartens that emphasized academic preparation were more likely to enhance first grade academic achievements.

Finally, the type of first grade attended also affected first grade performance. The two models of first grade education in this study had parallels in two of the preschool models previously discussed. Examination of these parallels helps to clarify first grade findings. Just as preschool Model M has consistently been found to be ineffective, so too is its first grade parallel, Model MF. Although Model MF teachers endorse more appropriate strategies, they do not go far enough in implementing child-initiated curriculum. Consequently, benefits of a more child centered approach just never seem to materialize for teachers who adhere to a "safer", more "middle-of-the-road" approach. They back down before truly implementing more effective strategies and the results of this half-hearted approach are poor.

By contrast, the more teacher-initiated content-centered first grades (Model TIC) have their parallel in preschool Model AD. Both of these models get results from children. Unfortunately, these results may come at the

expense of developing some other important skills for young children. In the current study, the true effectiveness of more teacher-directed models was not adequately tested because no programs using strategies like those reflected in Model CI were available for study. Until such a comparison can be made, it is probably better to avoid compromises such as the "middle-of-the-road" approach. At least in the present data, a content centered approach at the first grade level seems to be working. However, potential long-term difficulties with such an approach still need to be considered before establishing instructional policy.

CONCLUSIONS

After three years of studying early learning programs in the District of Columbia Public Schools it is now possible to identify strengths and weakness of various philosophical and curricular approaches. These data can clearly suggest future directions for early childhood education in the nation's capital.

Pre-Kindergarten/Head Start

First, and foremost, is the pre-kindergarten/Head Start program. Efforts to compromise between a more child-initiated versus a more academically-directed approach don't work. The resulting Model M compromise is ineffective and needs to be systematically eliminated from current classroom practices. While the other two approaches achieve fairly comparable results, some differences between the child-initiated Model CI and the academically-directed Model AD preschools are critical. Participation in Model AD programs clearly places the child at a disadvantage for later social development. By the end of both kindergarten and first grade, children from academically-directed pre-kindergartens are noticeably lower in social development than peers, including, in some instances, children who did not even attend pre-kindergarten. Furthermore, Model AD children do poorer on first grade reading and mathematics objectives than children from other preschool models. Pushing academics too soon, especially if it occurs at the expense of other important areas of development, does not result in better academic performance. Therefore, expansion of strong Model CI programs in the District's schools is encouraged.

Kindergarten

Second, a clear choice of kindergarten programs emerges in this three year study, at least for children who have attended pre-kindergarten or Head Start prior to enrolling in kindergarten. Programs that emphasize the socioemotional goals of kindergarten produce results which are superior to programs that believe academic preparation is a more important goal of the kindergarten experience. These results are evident, not only in the short-term, but also in the first year of the primary school experience. The development of children from ModAcK/SE kindergartens continues to advance in first grade, whereas children from programs emphasizing academics in kindergarten (ModAcK) actually loose ground developmentally in first grade. Ironically, kindergarten programs that believe academic preparation is more important produce fewer increases in skills at the kindergarten level and yield poorer performance on first grade reading and mathematics objectives. Clearly, there is no advantage in keeping kindergarten a 'junior' version of first grade. There is, however, reason to expect some real benefits from returning the kindergarten experience to the preparatory role it once held. In the process it will be especially critical to plan more effective interventions for children who lack prior school experiences.

First Grade

Finally, at the first grade level a provisional endorsement of content-centered curriculum is possible. However, the true effectiveness of primary grade approaches typified by Model TIC in this study is unknown because it has only been compared with an approach known to be less effective with District children. What is clearer is the effect of earlier school experiences on first grade performance. Findings from the original cohort of children and pilot data from a previous group of first graders yield two consistencies with respect to preschool influences. First, children from "middle-of-the-road" Model M preschools do poorer than peers from other preschool models. Second, in contrast to their peers, first graders from child-initiated Model CI preschools continue to make progress in social development. Of equal importance is the higher pass rates on first grade reading and mathematics objectives found for children who had attended ModAcK/SE kindergartens. Socioemotional kindergarten experiences may be the best preparation for acquisition of first grade skills, especially if children are involved in content-centered first grade programs.

RECOMMENDATIONS

1. Systematically eliminate the "middle-of-the-road" (Model M) approach from pre-kindergarten and Head Start classrooms in District schools by:

   a. re-educating teachers and administrators in the benefits of child-initiated learning and reducing penalties currently impeding implementation of more appropriate classroom experiences

   b. providing practical suggestions and incentives for adjusting instructional practices to be more developmentally appropriate for young children

   c. increasing the Early Childhood Education Office's role in recruitment and personnel decisions affecting Pre-K through Grade 3

2. Foster growth of child-initiated (Model CI) early learning programs that enhance later academic achievement and overall development of children by:

   a. encouraging teachers and administrators to re-orient the early childhood educator's role to that of facilitator who provides a stimulating environment and allows children to select from among many possible learning situations

   b. demonstrating for parents what children are learning through play and more active classroom experiences; as well as showing parents ways to continue an active learning process outside the classroom

   c. using an early childhood team approach within schools that enhances communication between Pre-K through Grade 3 teachers and leads to co-ordinated continuity of curriculum, goals, and methods that work best for young children

3. Re-establish kindergarten as a preparatory learning experience distinctly different from its current function as a 'junior' first grade by:

   a. emphasizing the importance of socioemotional development for later academic success and

fostering educational practices that develop the entire child

b. providing adequate funds to equip classrooms with materials and resources needed to stimulate appropriate early learning experiences

c. eliminating beginning-of-kindergarten administration of the Metropolitan Readiness Test because it introduces an illusion of 'junior' first grade status

d. requiring kindergarten teachers to be certified in early childhood education or to have comparable training in child development relevant to the needs of five-year-olds

4. Provide more effective strategies for introducing children, especially kindergartners, with no prior experience to their new school experience by:

   a. allowing these children to begin the school year earlier as part of an extended orientation program with their actual classroom teacher under a reduced class size situation that would allow more individual attention during the crucial transitional period

   b. closely monitoring the adjustment of inexperienced children and assigning a team of elementary counselors to deal specifically with this early childhood population on a District-wide basis

5. Establish a demonstration early childhood program for Pre-K through Grade 3 that will serve as an integrative staff training facility and innovative, experimental arena for new developments in the field (i.e., ungraded primary education as a way to reduce the stigma of early failure for minority children).

6. Re-evaluate the progress of children in this study as they move through the school system so that long-term effectiveness of different models can be determined. Evaluations at three- to five-year intervals and/or at critical transitional periods (i.e., upper elementary, junior high, senior high) would be helpful for identifying early childhood objectives that contribute to children's overall school competence.

APPENDIX A

SURVEY OF BELIEFS AND PRACTICES

PRE-K SURVEY OF BELIEFS AND PRACTICES

- I BELIEVE THE MOST IMPORTANT DEVELOPMENTAL GOAL OF PRE-K IS:

academic preparation ——— social and emotional growth

- My Pre-K classroom is most effective in fostering:

academic preparation ——— social and emotional growth

- I BELIEVE THAT PRE-K CHILDREN LEARN BEST THROUGH:

direct instruction ——— active experience

- Children in my Pre-K classroom are learning predominantly through:

direct instruction ——— active experience

- I BELIEVE THAT ACTIVITIES IN A PRE-K CLASSROOM SHOULD BE:

teacher initiated ——— child initiated

- The activities in my Pre-K classroom are typically:

teacher initiated ——— child initiated

- I BELIEVE THAT MY ROLE AS A TEACHER OF PRE-K CHILDREN IS TO:

dispense knowledge ——— facilitate learning

- In my present Pre-K classroom I am more likely to:

dispense knowledge ——— facilitate learning

- I BELIEVE THAT PRE-K PROGRAMS SHOULD USE A LEARNING FORMAT WHICH IS:

group oriented ——— individualized one-to-one

- My Pre-K classroom is typically:

group oriented ——— individualized one-to-one

- I BELIEVE THAT PRE-K CHILDREN IN A GROUP LEARN EFFECTIVELY THROUGH INTERACTIONS WITH:

adults ——— peers

- Most learning in my Pre-K classroom takes place through interactions with:

adults ——— peers

- I BELIEVE THAT CLASS MATERIALS AND RESOURCES FOR PRE-K CHILDREN SHOULD BE:

teacher distributed ——— child accessible

- In my Pre-K classroom materials and resources are:

teacher distributed ——— child accessible

APPENDIX B

SAMPLE DEMOGRAPHICS

Appendix B

Sample Demographics

	Pre-K Cohort 3 Class of 2002	Pre-K Cohort 2 Class of 2001	Pre-K Cohort 1 Class of 2000
Age			
Mean	59.5 mos.	58 mos.	58 mos.
Range	50 to 69 mos.	48 to 65 mos.	48 to 67 mos.
Sex			
Female	49%	52%	51%
Male	51%	48%	49%
Ethnicity			
African American	97%	95%	91%
Caucasian	3%	4%	8%
Other	-	1%	1%
Absences			
0-20 days	NA	82%	78%
over 20 days	NA	18%	22%
Lunch Program			
No Subsidy	32%	32%	29%
Subsidized	68%	68%	71%
Family			
Single parent home	56%	53%	67%
Two parent home	44%	47%	33%

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Sample Demographics

	Kindergarten Cohort 2 Attended Pre-K	Kindergarten Cohort 2 Did Not Attend Pre-K
Age		
Mean	70.3 mos.	70.1 mos.
Range	62 to 77 mos.	55 to 80 mos.
Sex		
Female	43%	37%
Male	57%	63%
Ethnicity		
African American	96%	100%
Caucasian	4%	-
Other	-	-
Absences		
0-20 days	87%	89%
over 20 days	13%	11%
Lunch Program		
No Subsidy	18%	24%
Subsidized	82%	76%
Family		
Single parent home	65%	67%
Two parent home	35%	33%

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Sample Demographics

	First Grade Cohort 1 Attended Pre-K	First Grade Cohort 1 Did Not Attend Pre-K
Age		
Mean	83.2 mos.	83.2 mos.
Range	77 to 89 mos.	70 to 93 mos.
Sex		
Female	52%	59%
Male	48%	41%
Ethnicity		
African American	94%	89%
Caucasian	6%	10%
Other	-	1%
Absences		
0-20 days	86%	81%
over 20 days	14%	19%
Lunch Program		
No Subsidy	29%	33%
Subsidized	71%	67%
Family		
Single parent home	61%	58%
Two parent home	39%	42%